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GASTRIC ULCERS

LEWIS GREGORY COLE, M.D.

NEW YORK

Articles from the pens of gastro-enterologists who have written most voluminously on this subject admit the difficulty of making a positive diagnosis of gastric ulcer, and they look and long for a test, such as the Wassermann, which will give an accurate diagnosis of gastric ulcer; but they shut their eyes to the roentgen-ray, which, if properly employed, would give them a diagnosis far more accurate than the Wassermann is for syphilis, and would not only give a diagnosis of ulcer per se but would determine the type of ulcer.

The literature is full of articles quoting remarkable percentages of cures of gastric ulcer by some particular "ulcer cure." If no reliable means of accurately diagnosing gastric ulcer exists, what proof is there that one has really cured a gastric ulcer? How does one know that one has not simply relieved a pylorospasm, which is the gastric manifestation of some organic lesion at a distant point, or caused the temporary remission of symptoms which regularly occurs even without treatment? The acid test, described later, should be applied to these cases of reported cures of gastric ulcer.

The inaccuracy of the diagnosis of gastric ulcer based on clinical symptoms and gastric analysis as described in the textbooks of that day was the subject of one of the last addresses given by Rodman before the American Roentgen Ray Society in 1916.

Sir J. Berkeley Moynihan, in delivering the Carpenter Lecture at the New York Academy of Medicine, Oct. 20, 1920, attacked these subjects more boldly than any one had previously dared. Speaking of the diagnosis and treatment of gastric ulcer, he said:

> I believe that error has crept in upon this subject to a degree which is even now quite inadequately recognized; that for many of the statements, which readily find acceptance, and that for much of the treatment, to which the patients are still submitted, there is no real foundation in adequate knowledge.

Here Sir Berkeley Moynihan gave a simile which, unfortunately, was eliminated from his published article. Evidently impressed by the chaos in the streets of "the City," he said:

> Today I watched with interest men with crow bars and axes tearing down old buildings in order that new modern sky scrapers may be built on the solid foundation. So tonight we must tear down the old and inadequate diagnosis and build a new one on a firmer foundation. . . . The literature of the subject is illimitable; it is in medicine as in finance, much paper and much poverty may coexist. Much dross has been foisted upon us as pure gold, and we have meekly accepted it as such because of the high authority or the specious phrases of the writer.

> As on the finger of a throned Queen
> The basest jewel will be well esteemed,
> So are those errors that in them are seen
> To truths translated and for true things deem'd.

All that has been written requires, I think, the most ruthless scrutiny in the light of the new truths disclosed by the work of the surgeon and of the radiographer. Heartless as it may appear, I venture, with diffidence but with hope, to suggest that complete reconsideration of this subject by physicians may be undertaken. [He further says:] If my own experience can be taken to have a representative value it is true to say that in more than half the number of cases in which the diagnosis is made in everyday practice, and by the ordinary methods, it is inaccurate. [Again he says:] The radiographic method is, in the expert's hands, the one certain method of diagnosis and is now an indispensable addition to the older and less accurate methods of inquiry.

Such statements as these from so great an authority as Sir Berkeley Moynihan, quoted and requoted, cussed and discussed as they were, have gone a long way toward tearing down the old, ramshackle methods of diagnosis and establishing a new method on a firm foundation of pathology as observed roentgenographically and surgically.

The early history of the roentgenologic diagnosis of gastric ulcer is most interesting. In the very early days of the development of roentgenology, Hemmeter did some notable work on this subject. Part was experimental work on dogs and rabbits; he also made some observation on the human subject. This article was read and in the hands of the publisher prior to any work published in Germany, and Dr. Hemmeter has letters acknowledging his priority in this line of work.

He stated that experiments on dogs, rats and rabbits demonstrated conclusively that a lesion of the gastric mucosa which extends to the muscularis could be made visible by the roentgen-ray method, and that bismuth in sufficient quantities would stick to the base of an experimental gastric ulcer and be visible for twenty-four hours, if no food was given.

The experimental surgical work was done by Frank Martin, and reported as follows: "Frank Martin cut a ring about 1 cm. wide out of the gastric mucosa, carrying it down to the circular layers of the muscularis, and he then covered this with a thin layer of bismuth subnitrate and closed the wound. The ring was visible twenty-four hours later in one case and thirty hours in another."

These experiments led him to conclude that bismuth subnitrate would adhere to the surface of an ulcer, and that this could be detected roentgenographically.

That this observation was to a certain degree correct was shown by the works of Haudek, who maintained that the bismuth would collect in a pouch or niche. This method of diagnosis was followed quite enthusiastically for a time by many roentgenologists, but failure to differentiate such flecks of bismuth in the crater of an ulcer from retention of bismuth in a normal cap or a small residue of bismuth in the stomach or duodenum led to so many erroneous diagnoses that the roentgenographic diagnosis of gastric ulcer fell into disrepute. Thus it was with difficulty that the medical profession was later convinced of the accuracy of the more extensive serial method of examination.

The various methods available to the general practitioner, namely, objective and subjective symptoms, gastric analyses, string tests and microscopic examination for blood, should be used to their utmost, but each must be accorded only that value which the test of time has allotted it. Unquestionably, all of these methods are of value in determining that there is some organic lesion or functional derangement of the stomach, cap or gallbladder. But we must ask ourselves with what degree of certainty it is possible to differentiate organic lesions from functional disorders by the use of one or all of these clinical methods combined. Is it possible even to divide the cases into organic or functional groups solely on the clinical evidence?

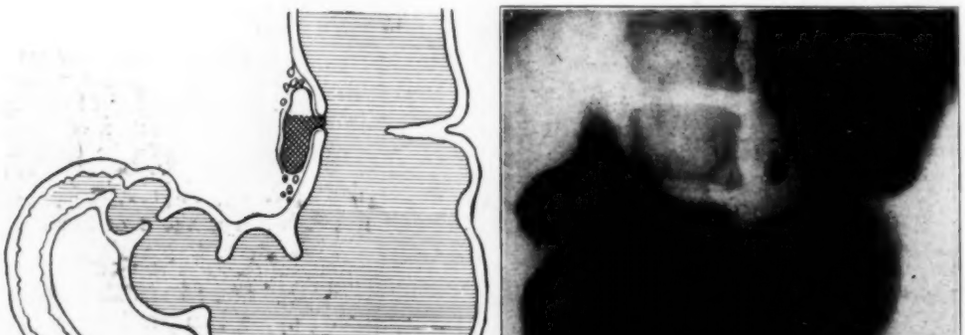

Fig. 1.—Penetrated or penetrating (considering adjacent viscera) or perforated (and walled off) or letter-box (Moynihan) type of ulcer. The ulcerating area in the gastric wall is small and deep, extending through all the coats of the stomach, and then expands into a larger pouch, which is walled off by adhesions. There may or may not be a sulcus opposite the ulcer. The line drawing accompanying each roentgenogram shows two approximately parallel lines, one representing the inner surface of the stomach, which the roentgenologist shows, and the other the outer surface, which the surgeon sees. The characteristic types of craters are shown by the cross checking; the induration surrounding the crater is shown by the small circles.

The clinical manifestations of the various types of gastric disease, functional derangement and reflex gastric symptoms are so complex and frequently display such similarity that they cannot be differentiated with any degree of accuracy. Indeed, it is even difficult to divide them into two important groups, viz., organic and functional. The organic group might be considered a surgical group, and embraces cancer, gastric and postpyloric ulcer, and cholecystitis; whereas the functional disorders, such as gastralgia, hyperchlorhydria and pyloric spasm, should be considered the medical group.

So much confusion has existed concerning the term "spasm" of the stomach that a discussion of this condition would not be amiss at this point. This term spasm, as applied to the roentgen-ray findings of the stomach and especially connected with gastric ulcer, has not been clearly defined, and has led to much confusion. Some roentgenologists apply the term spasm to a deep sulcus on the greater curvature of the stomach opposite the site of an ulcer on the lesser curvature. This has become such an important part of an ulcer symptom complex described by some observers that too often it is considered pathognomonic of gastric ulcer; but, as Carman so well stated referring to this type of spasm, "Spasm may arise from interior causes (lesions of the stomach) in which case it facilitates the diagnosis or, on the other hand, it may proceed from exterior influences and act as a hindrance to the roentgen-ray diagnosis [of gastric ulcer] by its persistence."

I believe that this sulcus on the greater curvature, diagnosed by many as spasm, is not in the majority of cases due to spasm but is caused by a cicatricial contraction of connective tissue in the muscular, mucosal and submucosal coats of the stomach, and that it has often been diagnosed as spasm because this sulcus is not observed at operation in cases in which it was definitely shown fluoroscopically or roentgenographically. This condition will be considered later, in the study of the scars of gastric ulcers. In the minds of the general roentgenologist or the clinician, various types of spasm or pylorospasm have not been differentiated from one another. This subject has been considered in a previous article, and therefore I will now simply mention the types of spasm, in the order of their most frequent occurrence: (1) prepylorospasm, involving the pars pylorica; (2) pylorospasm, involving the pyloric sphincter; (3) post pylorospasm, involving the cap; (4) cardia spasm, involving the cardiac orifice, and (5) a narrow sulcus in the pars media.

DEFINITION OF SPASM AS OBSERVED ROENTGENOGRAPHICALLY

I shall not attempt to dictate to others how they shall use the term spasm. But in order that my conception of the term may be understood, I must define it rather briefly because the roentgen findings indicative of spasm and its differentiation from organic lesions of the stomach have been described in previous articles.

Spasm may be shown in the roentgenogram in three ways:

1. By the contents of the pars pylorica, pars media or cap being expelled from the lumen of that portion of the tract by its muscular action in the vast majority of a series of plates made at different times with the patient in various postures. For example, if seven out of ten films showed the barium expelled from the lumen of the pars pylorica, such a case would be reported as presenting a seven-tenths degree of active spasm.

2. By the permanent diminution of the lumen of the stomach and possibly of the cap due to the persistent habitual contraction of the muscular coats, even though the contraction is absent or is controlled by an antispasmodic during the roentgen examination. This is evidenced by the appearance of the rugae in the involved area, and is similar to the contraction of the psoas muscle in the tuberculosis of the spine causing flexion of the thigh.

3. Possibly by a thin, narrow, persistent, nonprogressing sulcus on the greater curvature near the cardia; but, I believe, in most cases this is an organic lesion and not a functional spasm.

METHODS OF STUDYING THE PATHOLOGY OF GASTRIC ULCER

There are three methods: (1) necropsy, (2) biopsy, and (3) roentgenology.

The actual study by inspection, palpation and microscopic examination of the specimen as obtained by necropsy might be considered the method *par excellence;* but, in view of the rapid changes that occur in the wall of the stomach as a result of digestion of the mucosa by the gastric secretion immediately after death, and owing to the fact that we can study only one stage of development of the ulcer, usually the terminal stage, it gives one a misconception of the size and characteristics of the ulcer during the greater period of its existence, and makes the method less valuable than one would first think. Certainly, photographs of the specimens of gastric ulcers give one a very poor conception of the ulcer as it really exists in the living subject.

The study of gastric ulcers by inspection and palpation during an operation, and a microscopic examination of a removed section of the stomach, eliminate many of the disadvantages of necropsy findings; but this method, too, has its disadvantages. The knowledge gained by inspection, and particularly by palpation, which is the more important, is limited in its dissemination to the operator and perhaps to one or two assistants. Descriptions of what he sees and feels are unsatisfactory.

In those cases in which a gastric resection, or possibly an excision, is performed, a very few persons may examine the pathologic specimen while fresh, and before changes have resulted from the gastric secretion, and a great amount of valuable data may be thus obtained. But the data apply only to those cases in which the ulcer is of relative large size and associated with sufficiently severe symptoms to demand surgical relief.

Here, as in the cases of necropsy, only one stage of the ulcer can be studied.

By means of serial roentgenograms with examination frequently repeated, one can study the gross pathology of gastric ulcer; the size and shape of the crater; the amount of induration surrounding it; its location in the stomach, and its increase or diminution in size during periods of exacerbation or recession of symptoms, and determine whether any cases of simple gastric ulcer ever become malignant. Therefore, one can by this method obtain greater knowledge concerning the gross pathology and the natural course of the disease than by either or both of the previously mentioned methods.

The visual conception of a gastric ulcer in the mind of physicians has been and will be molded more by the observation of roentgenograms than by all necropsies and operations they have seen or will see.

METHODS OF RONTGEN-RAY DIAGNOSIS OF GASTRIC ULCER

Three distinct methods have been employed in the roentgen-ray diagnosis of gastric ulcer: (1) a fleck of bismuth subnitrate remaining in the crater of an ulcer; (2) symptom complexes, and (3) morphologic changes in the wall of the stomach.

1. A fleck of bismuth subnitrate remaining in the crater of an ulcer or adherent to its surface forms the basis for a method of diagnosis of gastric ulcer advocated by Hemmeter; but as this is of more historical interest than practical value, it was described in the paragraph on history.

2. The symptom complex method was originated on the continent, and was almost universally used both in Austria and in Germany as a means of diagnosing gastric lesions prior to the advent of the war, and is sometimes referred to as the continental method. Attempts were made by advocates of this method to classify subjective and objective symptoms, gastric analysis, string test, and the size, shape and position of the stomach, and particularly the emptying time of the stomach, as observed fluoroscopically, into a group of symptoms known as symptom complexes.

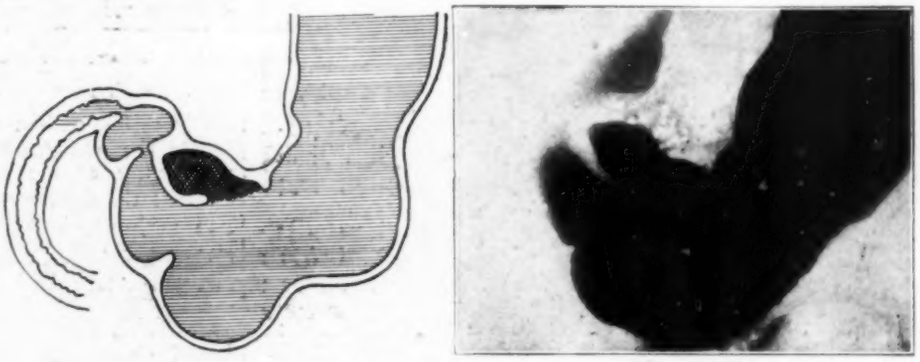

Fig. 2.—A burrowing ulcer penetrates the inner coat and burrows along toward the pylorus between the inner and outer coats of the stomach. The crater has the shape and appearance of a tongue.

These, as their name indicates, were merely sets of symptoms, some of which were recognized by fluoroscopy.

Holzknecht, Haudek, Kreuzfuchs, Strauss, Immelmann and many other German and Austrian roentgenologists have each compiled a symptom complex of his own. These differ from one another to such a degree that it is very difficult to recognize that they apply to the same pathologic condition. Each of these was undoubtedly of value in the hands of its compiler, but there is such a great variation that one would be at a loss to know which particular symptom complex to follow.

Carman was the greatest advocate of this method in this country, and he compiled a group of symptoms and signs with additional fluoroscopic findings which he referred to as "roentgen signs," of which the spasm or sulcus is an important factor. But I believe that at present he is depending less on the signs and more on direct evidence of morphologic changes in the wall of the stomach as observed either fluoroscopically or roentgenographically.

I myself feel that the diagnosis of gastric ulcer should rest on a firmer foundation than that of spasm or symptom complexes.

3. The direct method, which is sometimes referred to as the "American," in contradistinction to the continental, is based on the observation of morphologic changes in the wall of the stomach. These deformities are very often recognized by means of fluoroscopy or single plates, but the most accurate method of detecting these lesions is by means of serial roentgenography.

The observation of morphologic changes in the wall of the stomach by means of serial roentgenography is the one firm foundation on which to build the roentgen-ray diagnosis of gastric ulcer. Anything less than this, such as symptom complexes, gastric spasm, and rapid or slow gastric evacuation, is as shifting sand, and a diagnostic structure builded on such a foundation is bound to fall.

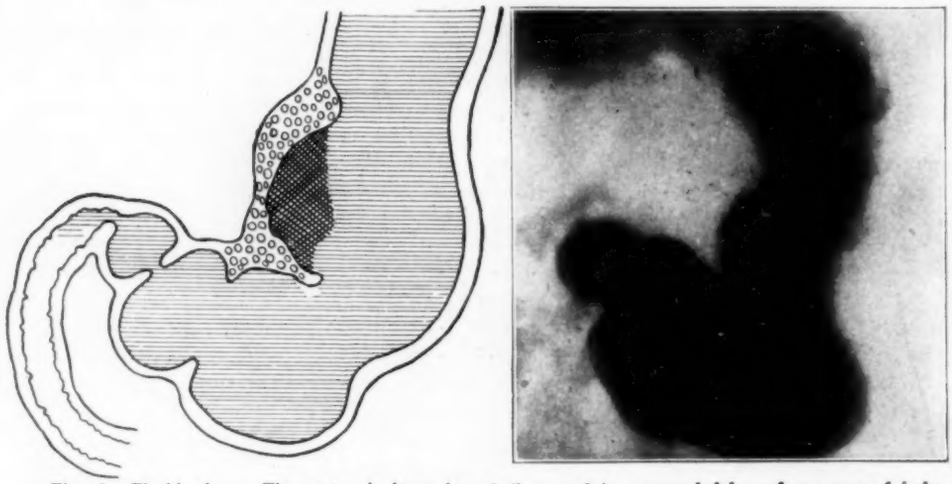

Fig. 3.—Florid ulcer: The crater is large but shallow, and is surrounded by a large area of induration. These ulcers closely resemble an ulcerated carcinoma.

If pathologic (that is, morphologic) change in the wall of the stomach is going to be the solid rock foundation on which to build the roentgen-ray diagnosis, then we must carefully consider the manner in which the ulcer involves the gastric wall and the adjacent viscera.

There are five or six types of ulcer which vary so much that no single description could be given that would accurately describe all of them.

The following are the six types of gastric ulcer: (1) deeply penetrating; (2) burrowing; (3) large, shallow, florid; (4) small, round or oval; (5) mucosal or submusocal, and (6) healed (*a*) with gross hour-glass contraction, and (*b*) with slight dimpling of the mucosa.

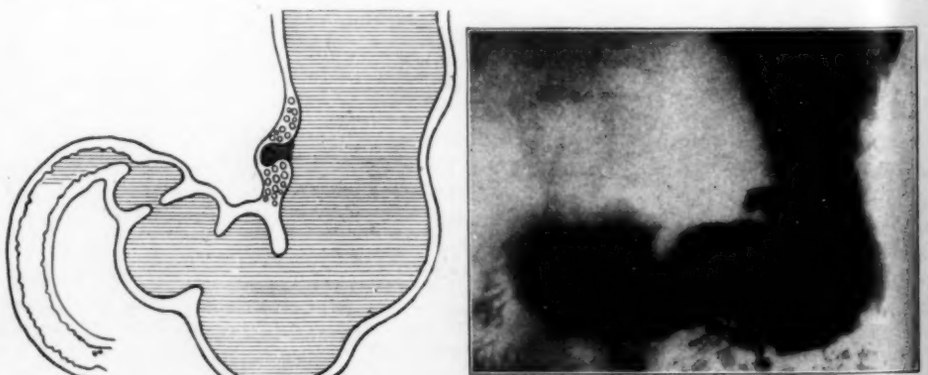

Fig. 4.—Small round or oval ulcer (with fairly deep crater); may develop into a penetrated ulcer (Fig. 1) or it may become the burrowing type (Fig. 2), or it may heal, as in Figure 8.

DEEPLY PENETRATING ULCER

The roentgenologic literature is full of descriptions of fluoroscopic findings and roentgen-ray illustrations of the first group of ulcers—deeply penetrating ulcer (if one is referring to the adjacent viscera) or penetrated ulcer (if one is referring to the gastric wall).

The type of penetrated gastric ulcers in which there is a hole through the gastric wall, with the adjacent viscera sufficiently adherent to the peritoneal surface of the stomach to prevent a general peritoneal infection, or when a pouch is formed in adjacent viscera, has been graphically described by Haudek:[1]

The radiological signs of a penetrating gastric ulcer are: (1) a patch or streak of bismuth, isolated from the mass of the bismuth meal, or branching out from it, usually at the lesser curvature and in the pars media of the stomach; (2) a gas-bubble at the summit of this isolated patch; (3) retention of the bismuth persists for a considerable time in this region; immobility of the bismuth patch, which is not influenced by palpation or pressure.

I have given the designation "nischensymptom" or "diverticulum symptom" to the complex of symptoms indicating a callous penetrating ulcer. These are as follows: (1) a diverticular projection from the stomach, bismuth shadow at the lesser curvature; (2) the immovability of this diverticular shadow under palpation; (3) the presence of bismuth remains in the diverticulum; (4) the presence of a hemispherical gas-bubble above the bismuth patch; (5) the sharply defined drawing in of the greater curvature, causing the so-called hour glass contraction; (6) displacement of the pyloric portion of the stomach to the left, especially noticeable in males, with a nearly vertical position of the lower part of the greater curvature; (7) marked diminution of the motility of the stomach; (8) antiperistalsis of the stomach; (9) the presence of a tender spot acutely sensitive to pressure, giving a sensation of resistance, situated above the umbilicus, in the region of the left rectus muscle. This is frequently, but not always, associated with ulcer of the body of the stomach.

Haudek's description of this type of ulcer has been quoted quite fully because his name has been justly associated with the niche he so graphically described.

But the term Haudek's niche has since then been incorrectly applied to small, superficial craters or morphologic changes in the wall of the stomach without the other gross changes in the contour or position of the stomach, and Hemmeter described this years before.

This type of ulcer is readily recognized either fluoroscopically or on a single plate, and the findings in the majority of these cases are so self-evident that even a

1. Haudek: Wien. med. Wchnschr., 1913, No. 48.

tyro would interpret the illustration as an organic lesion of the stomach and, if he had read the literature on the subject, as gastric ulcer.

Moynihan, from surgical observation, very graphically describes the advanced ulcer of this type, which penetrates into the adjacent viscera or underneath the liver, as a "letter-box type of ulcer."

Moynihan says that, looking at these ulcers from the inside of the stomach, one can put two or three fingers in this letter-box crater for almost their entire length.

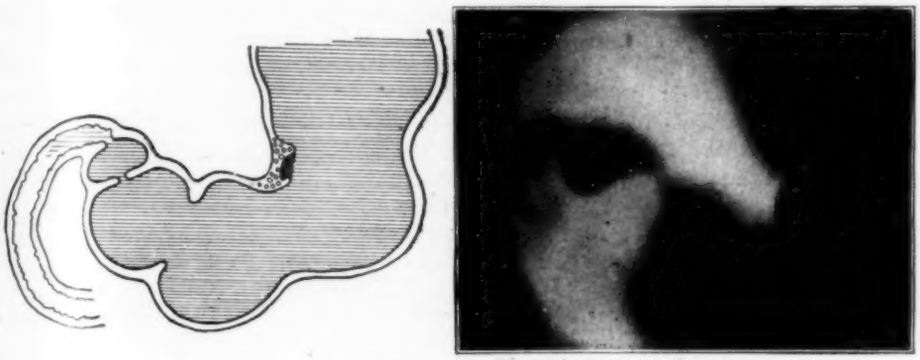

Fig. 5.—Small round or oval ulcer, with shallow crater.

This penetrating type of ulcer, compared with the other types, is of far greater frequency in the surgical clinics or hospitals where the easily diagnosed cases are sent for surgical relief, than they are in the routine practice of the physician, gastro-enterologist or roentgenologist.

BURROWING ULCERS

Burrowing or stripping ulcers are those which burrow toward the pylorus between the mucous and serous coats of the stomach, stripping one coat from the other; and the barium-filled crater has the appearance of a long tongue.

This type of ulcer, which burrows along between the coats of the stomach, must not be confounded with the penetrating ulcer, which is penetrating into adjacent viscera or under the liver.

Some one has stated that "craters always burrow toward the pylorus because of the propulsive force of the gastric peristalsis." When the tip of the tongue of the crater reaches the pyloric ring, it can progress no farther because of the anatomic structure, and it presses on the pyloric sphincter and causes an organic stenosis, with corresponding gastric retention. Cases with as long a tongue as the one shown in Figure 2 are comparatively rare, but the tendency to burrow is evidenced in many cases if one looks for it.

I was present when this patient was operated on. Surgical exploration revealed an indurated mass involving the pars pylorica. The stomach was free from adhesions, and was freely movable. The stomach was not opened except after the clamps were applied for the purpose of doing a gastro-enterostomy. By inspection and palpation, it was impossible to establish the character of the pathologic changes. As the condition of the patient did not justify its resection, no microscopic examination was made. Therefore, surgical exploration did not reveal the characteristics of this type of ulcer. Consequently, this case illustrates how much more valuable is the roentgenogram than surgical exploration in the study and classification of gastric ulcer.

A gastro-enterostomy was performed, and the patient improved remarkably, gaining 15 or 20 pounds (7 or 9 kg.), but the deeply burrowing crater was left, and it was apparently too deep to heal, and the patient subsequently died as a result of the lesion. Here we have an excellent example of the roentgen indication for the type of surgical procedure indicated; but this aspect has been discussed elsewhere.[1]

LARGE, SHALLOW, FLORID ULCERS

Gastric ulcer with a large crater and extensive induration spreading over a large portion of one surface or curvature is a type readily recognized by fluoroscopy, single plates or serial roentgenograms. The difficult problem in this type of lesion is to determine whether it is a large, florid, nonmalignant ulcer, or an ulcerating area in a large carcinoma.

The term "large" as applied to the crater is relative and indefinite. The Mayos have arbitrarily selected 2 cm., or the size of a quarter-dollar, as the distinguishing line between a large and a small crater, and I am willing to accept this.

There has been some controversy concerning whether gastric ulcers frequently become malignant, and it centers entirely around this type of ulcer; the compromise has been made on the cases in which the crater is as large as a quarter, or larger.

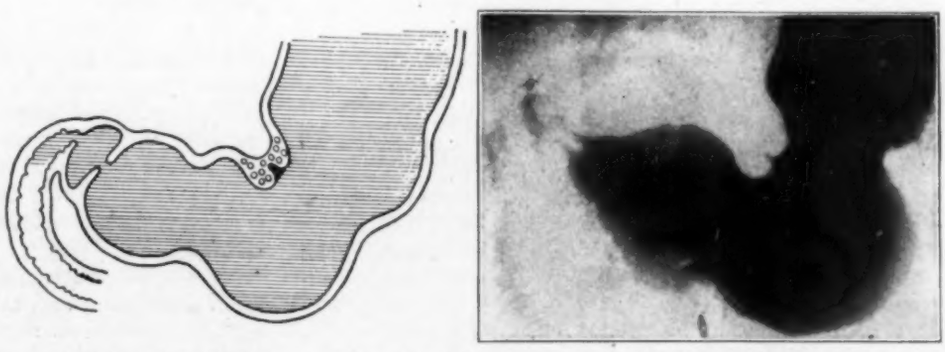

Fig. 6.—Small round ulcer: Ulcers of this type may fold together and form a slitlike ulcer, as a fissure.

In 1920, in an article on the question of whether gastric ulcers frequently become malignant, I mentioned that with gastric lesions of this type, the roentgenologist could not determine whether it was a large, florid, nonmalignant ulcer with induration, or an ulcerating area in a large cancer. I also stated that the surgeon could not determine this by inspection and palpation at the time of the operation, and that in many cases

1. Cole, L. G.: Article read before the Canadian Medical Association in June, 1922, to be published.

pathologists would differ after a microscopic study of the removed section. Therefore, surgical removal of these lesions, whether malignant or not, was indicated in all cases in which such removal was possible.

In my series of cases, 60 per cent. of this type of ulcer were proved malignant and 40 per cent. nonmalignant; but as this type of ulcer formed less than 10 per cent. of all gastric ulcers diagnosed by serial roentgenography, approximately only 5 per cent. of gastric ulcers were apparently malignant. My own belief is that these are ulcerating carcinomas rather than carcinomatizing ulcerations.

In Figure 3, the large shallow crater is readily recognized in the single print illustrating this type of ulcer, but the amount of induration surrounding this crater can be determined only by serial roentgenography. That part of the gastric wall which is infiltrated with small round cells and connective tissue is rendered less pliable than the normal gastric wall, and therefore the peristaltic waves as they progress toward the pylorus are obstructed, and this involved portion of the gastric wall outlined by the barium in the stomach has constantly the same shape throughout, and, when the roentgenograms are matched over one another, the involved area corresponds absolutely.

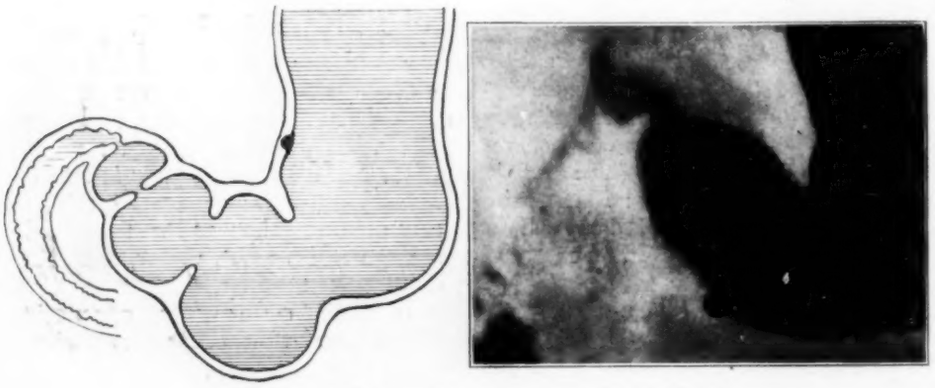

Fig. 7.—Small superficial mucosal or submucosal ulcer.

SMALL, ROUND OR OVAL ULCERS

The crater in this type of ulcer is small in diameter compared with those just described, averaging about 1 cm. in diameter, and they are shallow compared with the penetrating ulcers described as Type 1. The ulceration has destroyed the mucosal, submucosal and muscular coats, and involves the peritoneal coat to the extent of producing a localized peritonitis with adhesions to the adjacent viscera, but without penetrating these viscera.

The amount of induration surrounding these ulcers varies considerably. In those with little or no induration, the ulcer is more likely to increase in size and depth. When the ulcer is circumscribed by a well defined area of induration and connective tissue, progression is slow, and retrogression often ensues.

The more extensive of these ulcers so closely resemble the penetrating type of ulcer that differentiation may be difficult either roentgenographically or surgically. The less extensive ones so closely resemble the mucosal and submucosal ulcers that there is a question whether they should be considered in the same or a different classification. In fact, mucosal, submucosal, small, round or oval ulcers and penetrating ulcers are probably different stages of the same ulcer; but the clinical and surgical significance of these is so different that one is justified in making a rather artificial differentiation between the types.

MUCOSAL AND SUBMUCOSAL ULCERS

In mucosal and submucosal ulcers, the crater is even smaller and shallower than in the small, round ulcer, and the induration is so slight that it is often not detected by surgical palpation or inspection.

The surrounding stomach wall is so pliable that ulcers near the sulcus of the angle may fold on themselves and form a slitlike ulcer similar to a fissure in ano, and can be detected surgically only by opening the stomach and examining the mucosal surface.

The small, round ulcers and the mucosal or submucosal ulcers may be shown in the prone posture and not in the erect or oblique films, or vice versa. They may be shown in the films made immediately after the ingestion of the barium meal, or not until the two hour period, or vice versa.

These types of ulcer escaped detection by the roentgen-ray method until rather recently. Carman, in 1914, referred to this particular type of ulcer, and stated that when such ulcers existed there was very little hope of showing them roentgenographically. In 1915, I demonstrated this type of ulcer, and I note that in Carman and Miller's latest book they show this type of ulcer.

In these cases the stomach is singularly free from the gross deformities referred to in the previous types of ulcer: there is no deep sulcus on the greater curvature opposite the ulcer; the stomach is freely movable and not adherent to the under surface of the liver; in many cases the deformity is so slight that it can be differentiated from a double peristaltic sulcus only by the use of serial roentgenography and matching each film of the series over the other. These types of ulcers are far more frequent than all other types combined. After learning to recognize these, I found six such ulcers out of thirty-six consecutive gastric examinations. These ulcers occur most frequently on the lesser curvature above the sulcus of the angle, or about half way between the pylorus and the esophagus.

It is not strange that these types are not diagnosed fluoroscopically; and even when the characteristic findings are present in the films, they are frequently overlooked and not diagnosed as ulcers. In my experience, particularly at the office, the percentage of small, round and mucosal ulcers is far greater than all other types combined. This is directly at variance with the statistics of the large clinics and hospitals, in which the percentage of penetrating and large florid ulcers is far greater than that of the small, round mucosal ulcers.

This is accounted for in two or three ways.

1. The patients presenting themselves at the large surgical clinics and hospitals for surgical procedure have had severe or prolonged symptoms, many of the cases having been diagnosed by fluoroscopy or single plates. Therefore the severe and easily diagnosed cases have been sorted out and the patients sent to the hospitals and clinics.

2. Exactly the opposite condition exists with my series. At least one half of them have been examined roentgenographically before the patients came to me, and all the gross and easily diagnosed lesions have been sorted out, and I see only the cases in which pathologic changes are not easily found.

In other words, the surgeon and the hospital get the cream of the gastric ulcers, and we have the skimmed milk from which to get our nourishment.

3. There are no adhesions and very slight infiltration in the small, round and mucosal ulcers, and therefore they are not diagnosed by the surgeon by inspection and palpation of the gastric wall. If there is no such evidence, the surgeon rarely opens the stomach and examines its inner wall. Therefore, he fails to detect many ulcers of the fourth and fifth types at the time of operation.

Healed Gastric Ulcers.—Does a gastric ulcer cease to be a gastric ulcer when it is healed? This is an academic question that is open to discussion.

Many ulcers that have healed give characteristic deformities of the lumen of the stomach, readily recognized by means of the roentgen ray. Therefore whether we decide that they are ulcers or are not ulcers, we must consider their roentgenologic appearance.

That ulcers really do heal is evidenced by roentgen-ray, surgical and necropsy findings. These vary from the gross, time-honored hour-glass deformities, which every medical student knows, to the small, slight scars which pass unobserved by the pathologist unless he is looking for them and is trained to see them like the so-called lucky man who finds four leaf clovers.

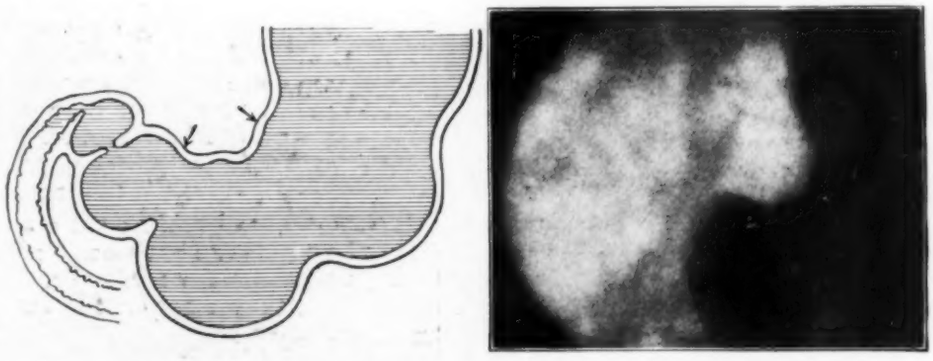

Fig. 8.—Healed gastric ulcer, with no crater, and without gastric deformity: lack of pliability of lesser curvature between the arrows.

Hour-glass contraction of the stomach is an old, familiar, textbook term and a condition readily recognized roentgenologically, either fluoroscopically or roentgenographically. This condition deserves special attention because there is much confusion regarding the recognition. I think that more discredit has been cast on the roentgen-ray methods of examination because of errors in the interpretation of findings that were suggestive of hour-glass contraction of the stomach that could not be detected at operation than any other thing. Part of these errors were due to improper interpretation of findings and part were due to lack of diligence on the part of the surgeon in not discovering the lesion at the operation. The subject of spasmodic hour-glass contraction of the stomach has been much overworked to shield both the roentgenologist and the surgeon in these cases of unsuccessful effort or lack of diligence.

The roentgenographic findings in true hour-glass contraction of the stomach are very characteristic. It may occur as a deep sulcus in the greater curvature in conjunction with a definite crater on the lesser curvature. This condition is described earlier in the chapter.

Roentgenograms made with the patient in both the erect and the prone position are necessary for a diagnosis of this condition. In the erect position the opaque meal may have completely gravitated into the lower pouch, so that the upper does not show. With the patient in the prone posture, the lower part of the upper pouch may lie over the upper part of the lower pouch, so that the sulcus does not show, or so that it resembles only a peristaltic sulcus. For the foregoing reasons, it is necessary to make the examination with the patient in both positions.

The true hour-glass contraction without active ulcer is usually the result of the cicatricial contraction of connective tissue which at some previous time ruptured certain layers in the muscular coat of the stomach, with a production of connective tissue; and as this connective tissue contracted into a circular scar, the lumen of the stomach became greatly diminished, like a narrow ring. In such cases the rugae in both the upper and the lower pouches have a normal appearance, and the area of constriction between the upper and the lower pouches is too narrow to be a malignant growth. Figure 9 graphically illustrates this type of case. The roentgen-ray findings were characteristic of an hour-glass stomach, and both the general practitioner and I were convinced of the diagnosis. The surgeon was one who would not even look at the "pictures" after the roentgen-ray examination had been made; he said he did not believe in roentgenographic diagnosis, and that if there was an hour-glass stomach he would find it at operation. The abdomen was opened and the stomach inspected, but no deformity or pathologic change was observed, and the surgeon had his innings in expressing his contempt of the roentgenologic examination without reserve, but his time was short. The general practitioner, who was present, was so sure of an hour-glass contraction that he finally persuaded the surgeon to open the stomach, and there he found a contraction of the mucous and muscular coats which was so tight that he could not get the tip of his little finger through it. The serous coat was apparently not involved, and formed a smooth surface over the constricted area much as it forms a smooth surface over the pyloric sphincter.

I have always appreciated the persistence of the general practitioner in that case who prevented one more case from going down on record as a spasmodic hour-glass contraction, and also prevented erroneously reporting a roentgenologic error.

There are, however, many instances in which a splenic sulcus or a deep peristaltic wave on the greater curvature has been interpreted as an hour-glass stomach. A splenic sulcus is a deep contracture in the extreme upper end of the greater curvature which is not the result of a genuine organic constriction. Whether this constriction is purely spasmodic and

therefore a true spasmodic hour-glass stomach, or whether it is due to the prolapse of the pyloric end of a cowhorn type of stomach which causes a buckling of the greater curvature, I am unable to state; but I am inclined to the latter view.

Spasmodic hour-glass stomach probably does exist, but great care should be observed to determine that the contraction is not a splenic sulcus or a deep peristaltic wave.

Typical hour-glass contraction of the stomach, due to a narrow band of cicatricial scar tissue which has contracted and separated the stomach into two more or less evenly divided pouches, is a pathologic finding which has long been considered pathognomonic of an old healed gastric ulcer. If the contraction is due to a narrow band of cicatricial scar tissue, the space between the pouch will be very narrow, in which case the question of the process being malignant is relatively nil. If, however, the constriction is due to an indurated mass which separates the stomach into two distinct pouches, and if this induration is relatively wider and shallower compared with the narrow band, the question of malignancy may be considered.

Dimpling of the Mucosal Coat.—With the healing of small, round and mucosal ulcers which occur only in the mucosa and submucosa, without destruction of the muscular coat, there is no gross deformity of the stomach, and all that remains is a small, shallow dimple with a slightly diminished pliability of the gastric wall, and the peristaltic wave becomes shallow and broad as it passes over the scar of the healed ulcer. The first case of this type that I saw I failed to recognize as a healed ulcer, and advised surgical procedure founded on the commonly accepted theory that 68 per cent. of all gastric ulcers become malignant.

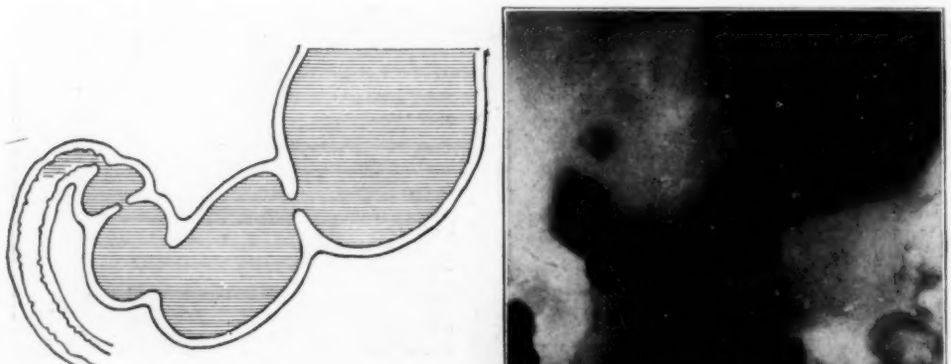

Fig. 9.—Healed gastric ulcer, with characteristic hour-glass contraction of the stomach.

At the operation, nothing could be seen on the gastric wall; but by careful palpation at the point indicated by the roentgenogram, one could detect a small area of thickening. This area was a small, white dimple or scar, and inspection and microscopic examination proved it to be the scar of a small healed ulcer. Since then I have noted these small ulcers. They heal either as the result of medical treatment or after a gastroenterostomy, and they result in this small characteristic dimple, which is readily recognized by means of serial roentgenography.

SUMMARY

Need of a method for accurate diagnosis of gastric ulcer is acknowledged by all. Inaccuracy of clinical symptoms and gastric analysis is conceded. Gastric ulcer can be diagnosed by means of the roentgen ray as definitely as a fracture of an extremity, and, if properly employed, is far more accurate for ulcer than the Wassermann test is for syphilis. Moyhihan says, "Fifty per cent. of diagnoses of gastric ulcer by ordinary methods are erroneous," and the roentgen ray "is now an indispensable addition."

Early history of roentgenologic diagnosis of gastric ulcer is interesting in that an American investigator originated the method, the general idea being that the method originated in Germany.

The five different types of "spasm" are: (1) prepylorospasm, involving the pars pylorica; (2) pylorospasm, involving the pyloric sphincter; (3) postpylorospasm, involving the cap; (4) cardia spasm, involving the cardiac orifice, and (5) a narrow sulcus in the pars media.

Spasm of the stomach is manifested in three ways: (1) direct evidence of the spasm; (2) distortion of the rugae, and (3) deep sulcus opposite the crater.

The methods of studying the pathologic changes of gastric ulcers are: (1) necropsy, (2) biopsy and (3) roentgenogology. The limitations of the first two methods are apparent. The scope of the third is unlimited, and the operation is relatively simple. By serial roentgenology with examination frequently repeated, one may study the gross pathologic changes of gastric ulcer, the size and shape of the crater, the amount of induration surrounding it, its location in the stomach, and its increase or diminution in size during periods of exacerbation or recession of symptoms, and may determine whether any cases of simple gastric ulcer ever become malignant.

Different methods of employing the roentgen ray in the diagnosis of gastric ulcers are (1) a fleck of bismuth subnitrate or barium remaining in the crater of an ulcer; (2) symptom complexes, and (3) morphologic changes in the walls of the stomach. The first two are unreliable, and the last is accurate, as the pathologic change in the wall of the stomach can be definitely shown; it is on this, and this only, that the diagnosis can be accurately made.

There are six types of ulcer:

1. The deeply penetrated type involves all the coats of the stomach and is shown in the roentgenogram by definite signs. It is easily diagnosed. Early roentgenologic literature is limited to descriptions of this type of ulcer. It is the type most frequently seen in clinics and hospitals.

2. The burrowing ulcer burrows toward the pylorus between the mucous and serous coats of the stomach, stripping one coat from the other. It must be differentiated from the penetrated ulcer.

3. The large, shallow, florid ulcer is easily recognized, but difficult of determination whether it is nonmalignant ulcer or ulcerating carcinoma. The distinguishing line between large and small craters is 2 cm. In cases in which the crater is as large or larger, frequently the surgeon during the operation, or the pathologist on sectioning the specimen, is unable to

determine whether the lesion is or is not malignant. In my series of cases of this type of ulcer, 60 per cent. were malignant, and 40 per cent. nonmalignant. But this type of ulcer formed less than 10 per cent. of all gastric ulcers diagnosed. Hence approximately 5 per cent. were apparently malignant, and I believe that most of these were ulcerating carcinomas from the beginning of the lesion.

4. Small, round or oval ulcers have small craters which involve the mucosal, submucosal and muscular coats, sometimes causing a localized peritonitis with adhesions to adjacent viscera but without penetrating the viscera.

5. Mucosal and submucosal ulcers have small, shallow craters often not detected by surgical palpation or inspection. Types 1, 4 and 5 are very similar, in fact, probably stages of the same ulcer; but they differ so much in clinical and surgical significance that they must be differentiated. This is the type of ulcer that is most frequent and most likely to be missed roentgenologically and surgically.

Many ulcers leave a scar, so that the roentgenologic appearance must be considered. Results of healed ulcers vary from a small, slight scar which will pass unobserved unless diligently sought for, to the gross hour-glass deformities familiar to every medical student.

Hour-glass deformity is frequently misinterpreted by both surgeon and roentgenologist. Films made in both the prone and the erect positions are necessary for diagnosis. A splenic sulcus or deep peristaltic wave on the greater curvature is frequently interpreted as hour-glass constriction. Spasmodic hour-glass stomach probably exists, but is very rare.

Dimpling of the mucosal coat resulting from the healing of a small, round or mucosal ulcer is due to scar tissue and should be interpreted as such, and is not a basis for surgical procedure, though it may have been advised on the erroneous conclusion that 68 per cent. of all gastric ulcers become malignant.

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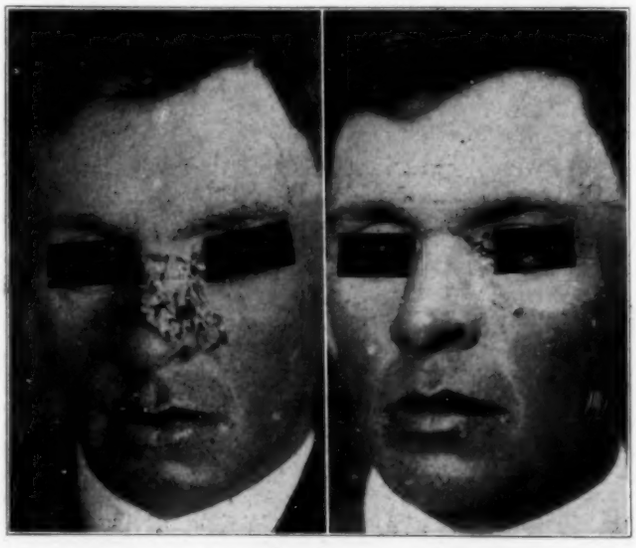


Fig. 1.—Result of superficial treatment in basal cell epithelioma: active nodule remaining on cheek because of insufficient irradiation; condition same in inner canthus, with the additional influence of movement of the lid; similar persistence doubtless takes place in deeper lesions.

Foreign and Native Parentage in Greater New York.—The New York Census Committee, established in 1919 to obtain speedy tabulation of the 1920 census, has become a permanent organization and is engaged continuously in analyzing the population of the city. Dr. Haven Emerson is chairman of the committee, which has recently published a study of the parentage of the citizens of Greater New York. It was found that Queens leads in the percentage of children of native parentage, while Manhattan has the largest proportion of children of foreign parentage. The figures are as follows: The ratios per thousand under 20 years of age, born of native parentage, are for the boroughs: Queens, 528; the Bronx, 510; Brooklyn, 456; Richmond, 442, and Manhattan, 365.

HIGH VOLTAGE ROENTGEN-RAY THERAPY

CONCLUSIONS DRAWN FROM THE TREATMENT OF THREE HUNDRED CASES *

SHERWOOD MOORE, M.D.
ST. LOUIS

The subject of high voltage roentgen-ray therapy as usually dealt with by radiotherapists is for those engaged in that variety of work. In consequence, it is likely to be most confusing to those not so engaged, since questions involving physics, technic, etc., usually comprise a large part of its discussion. Even radiotherapists are not in unison concerning the value, immediate and remote, of high voltage roentgen-ray therapy, while as to the conditions in which it should be used, their views often widely diverge. Since those engaged in this activity are confused as to its value, how much more must this be the case with the physician who is called on to advise a patient in the matter? As I had had the opportunity of applying this variety of irradiation to an extensive series of cases over a year's period of time, it occurred to me that the observations and impressions gained in this way might prove of interest and value to others. In this communication adherence to observed fact will be maintained as far as possible, and theory, speculation and quotation avoided. Technic, methods and reference to the physics of radioactivity will be introduced only to the degree necessary to a clear exposition of the subject, the object being so to present the application of high voltage roentgen-ray therapy that the reader may form his own conclusions as to the desirability of employing it. In doing so, many old facts and observations will be restated in an attempt to bring them into relation with this new method.

Since discussion of high voltage roentgen-ray therapy practically resolves itself into a consideration of its employment in the treatment of malignant disease, other conditions in which it has been used will be dismissed with brief mention.

Ninety-five nonmalignant conditions have been treated during the past year, of which number thirty-seven can be considered as experimental; i. e., there was no particular reason to suppose that radiotherapy would produce any favorable effect. Fifty-eight were conditions in which radiotherapy has proved its worth, among which were thirteen leukemias, three lymphatic, ten myelogenous; one Hodgkin's disease; one poly-

* Read before the St. Louis Medical Society, April 17, 1923.
* From the Actinographic Laboratory, Washington University Medical School.

cythemia; thirteen thyroid cases, and seventeen uterine myomas, fibroids and hemorrhage at the menopause. In the leukemias, results with the more powerful machine were secured with greater certainty, in less time, and with the same degree of effectiveness for the different types of the disease, than we would anticipate under older methods. Ultimate results in leukemia will doubtless be the same under the two methods of treatment, as the disease, not the treatment, seems the determinant of the outcome. The case of Hodgkin's disease was far advanced, and death intervened before the treatment was completed. The case of polycythemia was unaffected by treatment. With the uterine cases, our experience was the same except that results, when obtained, were more certain and more easily and speedily secured. The same general statement applies to the thyroid cases. In brief, the experience indicates that we possess a more efficient and more certain remedial agent for the treatment of nonmalignant conditions than was the case with older methods.

With these remarks, the nonmalignant group on which work was done can be dismissed and attention turned to the malignancies and their treatment. I shall deal not only with the high voltage roentgen-ray method of treating malignant disease, but also with the unfortunate tendency, which seems to be very prevalent, to discredit this method; unfortunate, because it does accomplish so much in an otherwise therapeutically sterile field—that of advanced malignancy. A discussion of high voltage roentgen-ray therapy, furthermore, necessitates some consideration of all radiotherapeutic agents of either natural or artificial origin, both because of their close physical relationship and for the additional reason that correct use of one implies a similar employment of the other.

Fig. 2.—Deep effect that is obtainable in basal cell carcinoma of the skin; treated through 10 cm. of water; this has been done successfully in several other cases.

HIGH VOLTAGE ROENTGEN-RAY THERAPY

Among other properties of roentgen rays is that of causing the death of animal tissues exposed to their action, provided the intensity is sufficiently great. Various tissues are variously susceptible to this action, the susceptibility apparently decreasing with increased specialization of the cells of the tissue in question. Brain is the tissue most resistant to radiation. Tumor tissues show this susceptibility to radiation to a greater degree than do normal tissues, and in this fact lies the theory and practice of radiotherapy. It is generally stated that the more embryonic the cell type of a tumor the more sensitive the tumor is to the action of rays. I believe that this sensitivity follows the rule of specialization laid down above; i. e., the less specialized the cell type of the tissue in which a tumor originates, the greater its sensitiveness. If this is true, then it follows that different tumors succumb to different intensities of roentgen rays, and observation indicates that this is precisely what occurs. Granted this fact, however, I do not believe that the cancer dose, ovarian dose, etc., of certain German writers[1] is to be accepted as final. To assume that a certain intensity of radiation is lethal for a given neoplasm imposes the condition that such radiation be equally and evenly distributed throughout the growth; otherwise the theory falls to the ground.

To secure this uniform intensity throughout a growth, many complex difficulties must be overcome, and at the present stage of development in radiotherapy it is doubtful whether they can be even recognized. In the first place, the extent of a tumor and its limits can at best be only guessed at. Even were these factors known, there still remain those of the density, bulk and conformation of both the tumor and the overlying structures, which factors must have the effect of causing an enormous variation in intensity of an agent that so rigidly follows the law of squares and the exponential law of ray absorption. Having their deleterious effect on normal as well as on neoplastic tissue, it follows that the intensity of rays necessary for the production of a lethal effect on the latter must injure the former to a high degree. If, then, the condition of lethal intensity is not met in a tumor, the cells of the latter are left in surrounding injured tissues, which possess but an impaired resistance to the proliferation and growth of such cells. Observation leads me to believe that this frequently takes place in radiotherapy; i. e., that tumor cells are left in a medium peculiarly suitable for their growth, and that this is the explanation of the stimulating effect on cancer growth that one so frequently hears attributed to the therapeutic ray (Fig. 1). Furthermore, excluding cases that are beyond repair, it is a reasonable explanation of the failure of radiotherapy to assume that it follows on the nonfulfilment of the foregoing conditions.

Among radiotherapists the intensity of ray that brings about the disappearance of tumor tissue is generally known as the "lethal" intensity, or dose. Since this word has been used and will appear again, it seems advisable to point out that "lethal effect" is to be sharply distinguished from necrosis. Though the latter sometimes follows irradiation, necrosis and subsequent sloughing are, as a rule, to be avoided as being undesirable. Satisfactory tumor regression is best secured in the absence of sloughing. Since this is the case, it follows that the adjacent circulation has an important part in the involution of irradiated tumor tissue. From this the further conclusion can be drawn that irradiation and local circulation are interdependent in successfully effecting regression of tumor tissue.

APPLICATION OF RADIUM

Since lethal intensity implies the delivery of uniform homogeneous radiation, the question arises as to how

1. Kroenig and Friedrich: The Principles of Physics and Biology of Radiation Therapy, English edition by Henry Schmitz, New York, Rebman Company, 1922, p. 196.

this is to be secured, what source or sources of radioactivity are to be employed. For this end no general rule can be either made or applied; sufficient to say that for correct radiotherapy both radium and roentgen radiation must be employed as complements to each other, choice depending on whether central, peripheral or a combination of the two methods of application are to be resorted to and whether irradiation is or is not to be confined to a limited area.

The difference in the radiations of radium and high voltage roentgen rays is of academic rather than of practical importance, as ultimately the soft, corpuscular rays absorbed produce therapeutic effects; i. e., there is no selective action of rays of various wave lengths on tissues; effects are due to the quantity absorbed.

The application of radium by implantation into a tumor has what to me seems a serious drawback, the ill effect of which I believe I have several times witnessed, in that it necessitates a mechanical disturbance to which rapidly metastasizing tumors should never be subjected. Application to surfaces or to hollow organs is free from this objection. As to crossfire methods of radium applications and surface applications to deep-seated lesions, the powerful roentgen ray seems to me to insure more homogeneity of ray and uniformity of intensity than does radium. There is the additional advantage that it does not carry a like hazard to those engaged in the work. Further, few clinics and fewer individuals can afford the large quantity of radium necessary for this method of application.

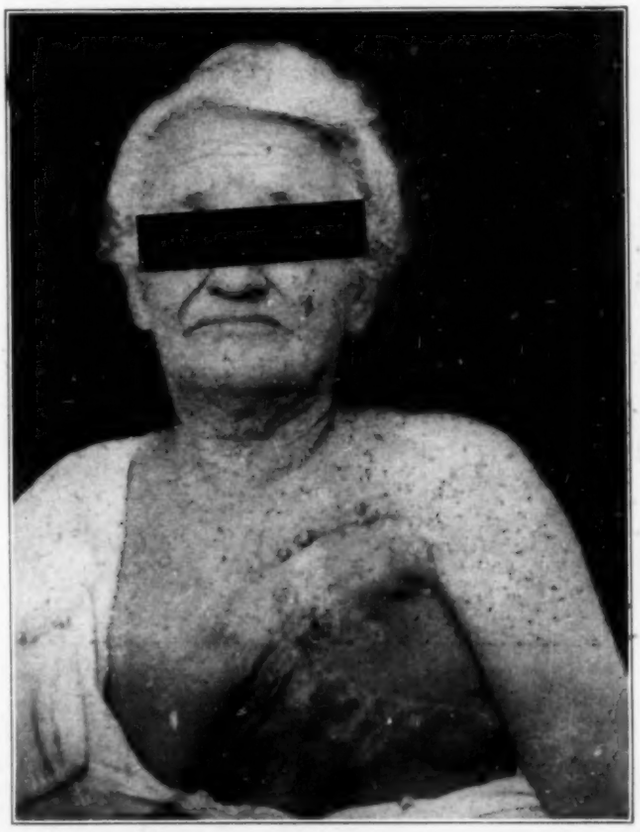


Fig. 3.—Appearance of recurrent nodules in spite of intensive roentgen-ray therapy. The explanation is to be found in the fact that insufficient rays were absorbed locally.

A word in regard to the older, less powerful roentgen-ray machine: It is as useful now as it formerly was, and for superficial lesions is still the instrument of choice; not, however, from any quality of ray that it emits, but for the fact that it produces *sufficient* intensity superficially. High voltage roentgen-ray machines will do exactly the same if correctly employed for that purpose (Fig. 2).

Even a casual reading of the literature of the past and present dealing with the treatment of cancer leaves the impression that "cure" has engrossed the minds of workers in this field to such a degree that it may perhaps have led them away from the true explanation of the etiology of cancer and thence from its eradication.

PRESENT METHODS OF TREATMENT

No discussion of a single phase of the treatment of malignant disease is desirable unless a general survey of the entire field is steadily held in view, in order that every phase may be kept in correct perspective and proper values assigned to all phases of such treatment. Briefly stated, the treatment of cancer at the present time consists in preventive measures, which are largely, if not entirely, concerned with the correction or removal of conditions or lesions in which cancer is known from experience to occur; in remedial measures after cancer has developed, and, lastly, in palliation when the foregoing are impossible of application. Excepting radiotherapy, all these measures are destructive, and as is the case with destructive measures, they introduce the problem of their worth. Consideration of the treatment of cancer raises the question of why and in what way it destroys life. Queries in this direction lead one immediately into a maze of complexities. So intricate is this that only these aspects will be referred to, viz., the relatively small amount of attention given the question, the inconclusive nature of such knowledge as exists as to the pathologic physiology of neoplasms and their effect on the host, and the slight evidence, growing slighter, that cancer per se causes death. The evidence points to the conclusion that cancer gives rise to conditions that lead to this outcome; of itself it does not cause death. Therein lies the best point of attack on the cancer problem, for it seems ultimately to lead in the direction of bringing the natural processes of the organism to combat the disease.

Prolonged observation of many cancer patients convinces me that a good constitution is the best defense the individual can present against cancer. Conditions known as "low degree of malignancy," scirrhous, chronic cancer, and the behavior at times of other types lead me to believe that their favorable course (type for type) is due to characteristics of the host in which they occur and not to inherent peculiarities of the cancer. Not only do I believe this, but I believe, further, that study of these characteristics of the host will lead to the discovery of their nature and a method of developing them for the purpose of combating the disease. In any case, until cancer therapy is placed on some such rational basis, its result will comprise a large proportion of failure. Until it is proved not to be the case, radiotherapy must be considered as having its action in this direction.

VALUE OF SURGICAL PROCEDURES

As to the value of surgical procedures in malignant disease, it is the custom to measure it in terms of subsequent longevity. This standard has as its advantages the fact that it is applicable to any series of cases

and has been universally employed. Against such a method of appraisal is the fact that it takes no account of the duration of life that might have obtained in the absence of surgery. To illustrate, let me cite such cases as that of a gastric cancer, originally inoperable, being treated with the roentgen ray seven years after confirmation of the diagnosis; of a cancer of the breast in which the patient applied to a clinic eighteen years after the onset of symptoms; and of a melanoma recurrent nine years after operation. The truth is that life duration after operation in malignancy might indicate several things or their reverse. If the duration is long and the patient never has a recrudescence (assuming a correct clinical and histologic diagnosis), it indicates more than anything else a localized disease; if short, it indicates that the foregoing did not obtain. In any case, this standard is not a true method of evaluation, since it tells nothing in regard to what is accomplished in the matter of comfort and general well-being for the patient.

QUESTION OF THE STIMULATION OF TUMOR GROWTH

It is frequently charged that radiotherapy stimulates and spreads cancer growth, and it is my desire to refute this, if possible. I do not see that there is foundation for this charge. In the first place, cancer patients, and particularly those undergoing high voltage therapy, are today subjected to a scrutiny hitherto unknown to such patients. The natural consequence is that metastases and widespread extensions are being discovered that formerly escaped notice. This closer observation is almost always subsequent to the institution of radiotherapy. Ergo, intensive growth in cancer is the result of radiotherapy! I have had some rather startling experiences in this direction. I say startling for the reason that in the past I have made a practice of roentgenographing bones which are the seat of pain, and also the chest in persistent cough, dyspnea or what not, to obtain information in regard to metastases. In the main, this is quite satisfactory and it is astonishing how great a number of these will be uncovered. However, one will be even more astonished by the results of roentgenographic search of cancer patients lacking symptoms other than those of the cancer. Physical examination of the seat of a cancer, with palpation of the lymphatic drainage and biopsy, will not suffice to judge the question of extension, and especially of metastasis. Taken alone, they certainly are not sufficiently delicate to determine the choice of a method of treatment.

Of equal importance with the roentgenographic study of a patient with cancer is the greater care in studying the history and symptoms of the patient. As bearing on this point, the following cases can be considered, all inoperable prostatic cancers.

A B

Fig. 4.—Metastatic carcinoma of head of humerus: *A*, June 15, 1922; *B*, March 9, 1923.

The first patient had marked vesical symptoms with much lumbar and sacral pain. Roentgenograms of the latter regions showed evidence of metastasis to the spine. The patient experienced wonderful local improvement under high voltage roentgen-ray therapy, with much gain in weight and strength for a time, after which his general condition grew worse and he could not return for treatment. On discussing the case with the patient's son, I elicited an unmistakable history of persistent afebrile hemoptysis, antedating the development of vesical symptoms sufficiently marked to bring the patient to the genito-urinary surgeon.

The second patient was referred with a hard, nodular, fixed prostate and severe pain in the lumbar spine. Roentgenograms of the latter revealed such extensive involvement that it was thought of interest to roentgenograph the entire skeleton. It was a surprise to find practically the whole skeleton proximal to the elbow and knee the seat of metastases. Later this patient suffered intensely from bone pain for which the roentgen ray gave almost complete relief. He died as the result of a fractured femur, in the production of which metastasis undoubtedly played a part. Before coming to us, this patient had undergone severe instrumentation and prostatic investigation. Did this produce the wide dissemination?

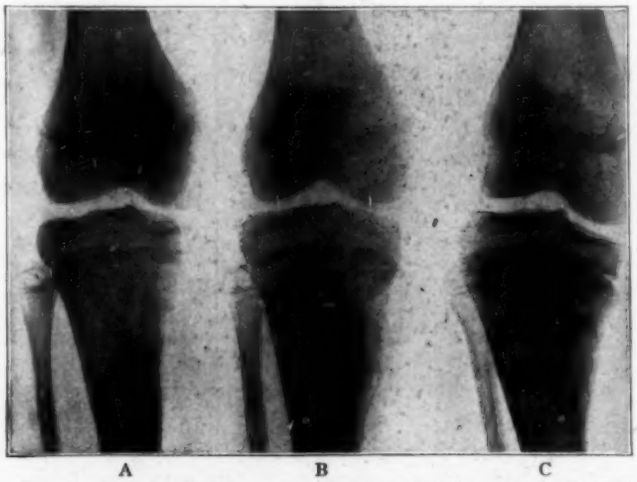
The third patient had a cancerous nodule in the skin of the flank antedating both radium implantation and roentgen-ray therapy. Irradiation was followed by great relief of local symptoms, but the general condition became steadily worse, and on return for his second series of treatments, a roentgenogram of his chest showed widespread pulmonary metastasis. It is of interest that bone metastasis in this case was never discovered.

The fourth patient, as a result of an accident, had occasion to have his skull roentgenographed to determine the presence of fracture. The calvarium showed signs sufficiently suggestive of metastatic carcinoma to lead to the roentgenographing of the whole skeleton. Characteristic appearances of carcinoma were found in the pelvis and lumbar spine. These findings led to prostatic examination, which warranted a clinical diagnosis of carcinoma of the prostate.

These four cases are dealt with rather fully, as I believe they illustrate the type which gives rise to the statement that roentgen-ray treatment stimulates cancer spread and growth. Consideration of these four cases leads me to one conclusion: Of the measures employed in the diagnosis and treatment of prostatic cancer, no one can be singled out to bear the odium of being the disseminator of cancer. There is one great lesson to be learned from them, and that is that similar cases should receive closer study both by roentgenograms and by other means than it is the accepted practice to accord them. I would apply this statement to all patients harboring a malignancy. I believe, further, that similar observations can be made on other types of malignant disease arising in other organs.

That roentgen rays do occasionally have a beneficial effect on parts of the body remote from those under treatment is an old observation and points to a constitutional effect. However, there is a surprising lack of evidence pointing to the existence of a "stimulated" protective mechanism in malignant disease, after irradiation. Two cases in the last year showed this general effect. One was a case of mycosis fungoides, in which there was a clearing up of all lesions on the head, neck and extremities, while the trunk alone received rays. In the other case, one of acute leukemia with menorrhagia, in which one ninth of an ovarian dose was administered, the white count dropped from 90,000 to 2,900 cells per cubic millimeter in a few days. On intra-uterine radium application, it went as low as 500.

To sum up: The question of the stimulation of tumor growth after administration of roentgen rays is one requiring proof to substantiate this assertion frequently heard. I have yet to see a case of malignant disease brought into intensified growth through radiotherapy when contributory factors could be excluded. Surgical operation in unsuitable cases, with incision through involved tissue, alteration of the circulation in a part, etc., was present, but most frequently the trauma due to the insertion of radium needles was the attendant injury. I have frequently seen a malignant process intensified and spread following such use of radium in needles in insufficient quantity, and I have always considered that it was the mechanical injury from the procedure that was at the bottom of such unfortunate occurrences. It is admitted that intensive growth does take place following, and even in the course of, administration of radiotherapy (Fig. 3), but it is not the result of the ray alone. I do not wish to be guilty of sophistry, for the final effect is the same; the apparent stimulation, however, is the result of decreasing with roentgen rays the already impaired local resistance.



A B C

Fig. 5.—Round cell (?) sarcoma of head of tibia: *A*, Feb. 2, 1922; *B*, April 13, 1922; *C*, April 11, 1923.

WHAT CAN BE ACCOMPLISHED BY APPLICATION OF RAYS

There are many theories advanced to explain the modus operandi of the action of radiotherapy in the human body. None of these are free from objection, and the various hypotheses are characterized by an ingenuity that is in excess of the exact knowledge of the behavior and action of rays in the organism. In its present stage of development, I believe it is wiser to confine our explanation of the mechanism of the action of rays to the few facts that are known and avoid theorizing. The point that we are interested in is more a question of what we can accomplish by the application of rays and in what class of patients its use is desirable.

As has been remarked, I have yet to see malignant disease stimulated by radiotherapy when other factors could be excluded. Inoperable cases that have not been meddled with prior to coming for radiotherapy have, in my opinion, never shown what could be considered stimulated growth. The part that the circulation plays in tumor growth is demonstrated in cases of cancer of the breast and uterus during lactation and pregnancy. There is a further parallelism to be drawn from the behavior of these organs. Tumors arising from them during the period of their physiologic activity, i. e., before the menopause, average a more rapid rate of growth and a higher resistance to radiotherapy than they do subsequent to that event. Reasoning from this, I believe it can be stated that the greater the physiologic activity of an organ which is the seat of a malignancy, the greater the rate of progression in the latter, just as it is the more resistant to radiotherapy. I do not believe that cancer of the alimentary tract is less amenable to this form of treatment either through greater resistance of its cells or through the difficulty of irradiating them, but rather because the parts cannot be put out of function. Some corroboration of this is found in the occasional long survival of patients with short circuited intestines and colostomies, without any radiotherapy.

Aside from its alleged injuriousness through stimulating malignancy, the employment of high voltage roentgen-ray therapy is deprecated because of its supposed bad general effect as exemplified by roentgen-ray sickness. It has been my experience that this has been much overestimated, as to both the degree of severity and the frequency of occurrence. No one denies its occurrence; however, by distributing the dose over a period of time, this bad effect can be largely eliminated. As to other immediate bad effects, the few that have occurred have been too transient to cause concern, too fleeting to allow of an opinion to be formed. Necessarily, the time is not sufficiently long to allow of the formation of an opinion as to remote bad effects.

Of the total cases treated, 243 were malignant, of which fifteen were in patients to whom immediate postoperative radiation was administered for prophylactic purposes, and 205 were carcinomatous. Of the 227 malignancies, only two could be considered operable in the sense that complete extirpation could be assured with a fair degree of certainty. One was an amputation which was refused (Fig. 5), and the other was an extirpation which was refused on account of the infirmities of age. The mortality, as far as we could ascertain it, has been seventy-six, and I believe that this figure is far too low. Treatment was not refused a patient, no matter how extensive the disease, so long as there was some prospect of adequately irradiating the involved regions. I do not believe that in the case of those dying, the roentgen ray contributed to that end except in six cases, in one of which I believe that death followed an excessive dose.

Observations on the blood, metabolic rate and urinary output have not been as generally applied as is desirable; however, enough were made to allow of the conclusion that changes so shown were inconstant and of minor degree under the method employed in using the ray.

Although it is the logical development of the older method of roentgen-ray therapy, the new high voltage machine, because of its greater efficiency, can be considered as a new therapeutic instrument. However, it appeals to me as being an addition to and not a replacement of any agency at present used in the treatment of malignant disease. I will not give further figures or opinions as to the worth of this method of treatment, except to state that the palliation the patients experienced was well worth the laborious endeavor. Further, it seems fully as valuable therapeutically as the methods of treating the degenerative diseases. A few illustrations are shown demonstrating actual change that can take place under administration of deep therapy.

CONCLUSIONS

1. All methods of treatment of malignant disease are in need of critical examination.

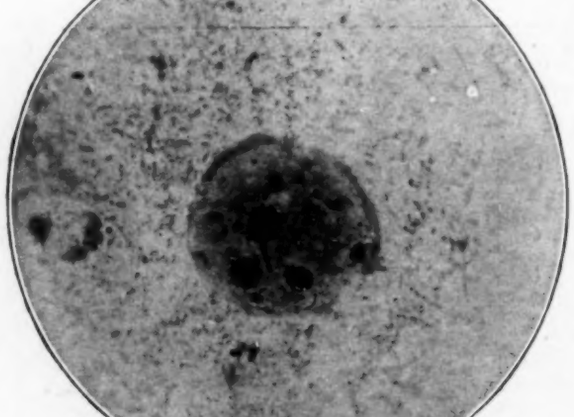
2. Such treatment needs better coordination between surgical and radiotherapeutic measures and a better understanding between surgeons and radiotherapists.

3. Patients in the malignant ages should be more closely studied, both in regard to the possible existence of neoplasm and in regard to its extent.

4. Patients with widespread extension and metastases should have less surgery and more radiotherapy.

5. More and closer clinical observation and a better follow-up system is a most urgent need in the management of cancer patients. At present there is a disproportion between the time and energy expended on laboratory and clinical studies of malignant disease, respectively.

6. Every effort should be made to place the treatment of malignant disease on the more rational basis of using the natural resistance of the body to combat the disease. The analogy of the treatment of pulmonary tuberculosis suggests itself.



Ameba in smear of seminal fluid, showing inclusion of erythrocytes and eccentric nucleus; × 1,000.

Accurate Observation.—No one who pauses to reflect can fail to admire the master minds of medicine, who, by simple signs and statistics, not only interpreted many disease processes correctly, but on them built an admirable system of diagnosis. Nothing can be substituted for the power of accurate observation, either at the bedside or in the laboratory. Nevertheless, it happens that many phenomena of the circulation, normal and abnormal, remain undetected by our unaided senses. Consequently, various instrumental methods have been introduced which supplement our direct observations either by recording the functions of the circulation graphically or by translating them into numerical terms which the mind can more definitely grasp.—Wiggers: Circulation in Health and Disease, Philadelphia, Lea and Febiger, 1923.

ENDAMEBA HISTOLYTICA IN SEMINAL FLUID IN A CASE OF AMEBIC DYSENTERY *

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The first and only recorded instance of localization of *Endameba histolytica* in the genital organs of man was made by Warthin,[1] who found amebas after death in the testis and epididymis of a man with chronic amebic dysentery. In the case reported here, *Endameba histolytica* was found, during life, in the seminal fluid of a man suffering with chronic amebic dysentery.

REPORT OF CASE

Since 1915, a chauffeur, aged 28, has had three or four attacks of diarrhea yearly. In the attacks, which last from one to three weeks, he usually has five or six copious, sour, gas-riddled, mushy stools daily; marked flatulence; slight tenderness over the descending colon; marked nervousness; weakness, and malaise. Fermentative colitis, gas bacillus colitis and nervous diarrhea had been diagnosed, but he did not improve with the usual diets.

Ten years ago, he had an attack of gonorrhea that appeared to be cured in three months. During the first attack of diarrhea, which occurred two years later, a creamy-white urethral discharge developed and persisted for a year. In recent years, a slight "gleety discharge" has been present every morning; the amount is not increased when he has diarrhea, but before and during the attacks he complains of a feeling of fulness and pain in the perineum, often referred to the glans penis. He occasionally has pain after urination, but no polyuria. Smears of the urethral secretion in recent years have revealed no gonococci.

When he entered St. Joseph's hospital, Feb. 15, 1923, he was pale, nervous and underweight. He complained of weakness, diarrhea, slight abdominal pain, and pain in the perineum. There was definite, localized distention over the descending and ascending colon, and marked borborygmi. Blood examination gave 4,200,000 erythrocytes, 18,200 leukocytes, 75 per cent. hemoglobin, 70 per cent. polymorphonuclears, 26 per cent. mononuclears, and 4 per cent eosinophils. Wassermann tests of blood serum and spinal fluid were negative. A specimen of fresh, warm stool, collected after the administration of 2 ounces of magnesium sulphate, revealed erythrocytes, leukocytes and motile *Endameba histolytica*. The bacterial flora, determined by methods recently described by me,[2] was proteolytic in type, with large numbers of *B. welchii*. He was treated with subcutaneous injections of emetin hydrochlorid, emetin bismuth-iodid by mouth and quinin enemas. There was slight improvement temporarily, but he had another attack of diarrhea, April 1, and amebas were again found in the stools. He now complained of severe pains in the perineum, and rectal examination by Dr. C. M. McKenna revealed slightly enlarged and extremely tender seminal vesicles. The vesicles were massaged, and the semen was collected and

* Aided by a grant from the Fenger Memorial Fund.
* From St. Joseph's Hospital and John McCormick Institute for Infectious Diseases.

1. Warthin, A. S.: The Occurrence of Entameba Histolytica with Tissue Lesions in the Testis and Epididymis in Chronic Dysentery, J. Infect. Dis. **30**: 559 (June) 1922.
2. Hines, L. E.: Intestinal Flora in Diarrhea, J. Infect. Dis. **32**: 280 (April) 1923.

immediately examined on a warm slide. Numerous pus cells, gram-positive cocci and bacilli, and amebas similar to those found in the stools were present. There were no amebas in the urine from either kidney, obtained by urethral catheterization. Despite vigorous emetin treatment and local treatment of the seminal vesicles, the amebas are still present in the semen but absent from the feces.

CHARACTERISTICS AND SPECIES OF THE AMEBAS

At the first examination of the stools, nonmotile bodies, about 15 microns in diameter, with two and four round nuclei, were observed; also smaller nonmotile bodies with clear cytoplasm and eccentrically placed spherical nuclei; and actively motile bodies, about 25 microns in diameter, with granular cytoplasm and indistinct, eccentric, spherical nuclei. In some of the latter bodies, erythrocytes and large and small vacuoles were present.

The semen was not examined before the patient had received 12 grains of emetin. No amebas with the active motility observed in the organisms in the feces were present, but large, granular, ovoid bodies, with spherical nuclei were observed to throw out pseudopodia of clear ectoplasm while the body itself remained stationary. In one instance, the pseudopodia were seen to envelop a spermatozoon. These bodies, like the larger ones found in the stools, contained erythrocytes, vacuoles and small granules. Many small nonmotile forms with clear cytoplasm and round eccentric nuclei were also present.

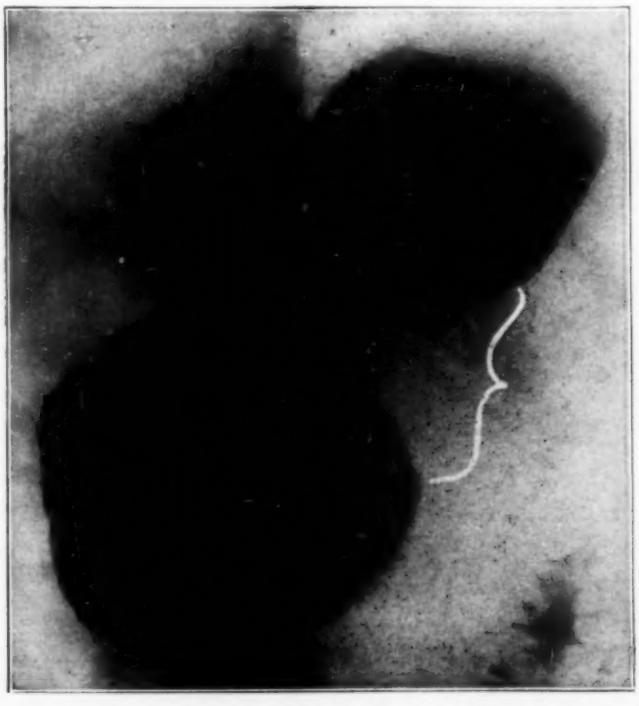

Fig. 1 (Case 1).—Large irregular defect at middle of greater curvature.

Dobell,[3] who has studied so extensively the life history of the pathogenic *Endameba histolytica*, believes it is safe to assume that an ameba containing erythrocytes is *Endameba histolytica*. He also ascribes considerable importance to the projection of pseudopodia of ectoplasm from a stationary body, in differentiating the pathogenic from the nonpathogenic forms. He believes that this movement is seen only in amebas which are, in some degree, degenerated. It is possible that the emetin therapy, previous to examination of seminal fluid, accounts for the degenerated forms in this case.

The characteristic annular nucleus was not clearly observed in smears stained with iron hematoxylin, Giemsa stain and eosin methylene-blue. The small bodies without cytoplasmic inclusions, found both in feces and semen, are characteristic of precystic forms; the bodies with four nuclei are cysts, and the motile granular forms with inclusions of red corpuscles and spermatozoa fulfil the requirements of active *Endameba histolytica*.

As the seminal vesicles were enlarged and tender, and no demonstrable changes were present in the prostate gland or testes, this case might be regarded as one of amebic dysentery with amebic metastasis to the seminal vesicles.

3. Dobell, C.: The Amebae Living in Man, 1919.

ROENTGENOLOGIC DIAGNOSIS OF CARCINOMA OF THE TAIL OF THE PANCREAS

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AND
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The clinical picture in cases of carcinoma of the tail of the pancreas is so ill defined that a correct clinical diagnosis is made rarely, if ever. Any contribution tending to aid in the diagnosis of this type of cases, therefore, should be welcome.

The two cases of carcinoma of the tail of the pancreas here reported present interesting features clinically as well as roentgenologically. Both cases have been observed for a long period of time, and both came to operation. It will be seen that in the first case the roentgen-ray findings have been misinterpreted, while in the second case, as a result of our experience gained in the first case, the possibility of carcinoma of the tail of the pancreas was considered roentgenologically.

The roentgen-ray findings in both instances were so characteristic of gastric malignancy that a definite diagnosis of carcinoma of the stomach appeared justified. The clinical findings, on the other hand, were not very typical of any organic lesion of the stomach; in fact, there were, in the clinical picture of these two cases, several points which spoke against such a diagnosis.

An analysis of the two cases will show that the radiodiagnostic mistake could have been avoided, if the roentgen-ray findings had been interpreted under full consideration of all the clinical points. It is a mistake generally made when what is considered a "classical" roentgen-ray find is allowed to brush aside any objecting clinical consideration.

REPORT OF CASES

CASE 1.—*History.*—A married woman, aged 44, in comfortable circumstances and without active occupation, came under observation, Feb. 5, 1920, complaining of a progressive loss of flesh and strength, with frequent attacks of diarrhea. The family history presented nothing of interest. The patient's mother died of cardiorenal disease at the age of 50. Aside from an attack of malaria, the patient's health had always been remarkably good. Growth and development were normal. Constipation, for which she used laxatives, had existed for years before her present illness. Her habits were good; she was a light eater, but rarely ate any uncooked foods.

About one year previously, she noticed a marked change in her digestive functions; certain foods disagreed with her, causing looseness of the bowels. She attributed this to worry about her brother, who had been drafted for service in the navy. Six months later, she consulted a physician, who treated her for nervousness and biliousness, and put her on a very restricted diet. From this time on, she noticed a gradual loss of weight, and until she consulted us, she had lost 30 pounds (13.6 kg.) and was very feeble. Believing that the strict diet might have caused the loss of flesh, a liberal diet was ordered, and her weight taken at intervals, for two weeks. It was found that her weight continued to diminish, but that her digestion was remarkably good. No disturbance after meals or any other gastric distress occurred except after taking milk or ice cream, when she noticed a looseness of the bowels; this was overcome, in the case of the milk, by boiling it.

Her only complaints at this time were lassitude, weakness and continued loss of flesh.

Examination.—The patient was poorly nourished, with very little adipose tissue and with flabby muscles. She weighed 120 pounds (54 kg.), 30 pounds below the average. The temperature was normal. The skin showed a peculiar bronzing; the sclerae were not jaundiced. The lungs and heart were normal. Examination of the abdomen revealed no abnormality. The liver, gallbladder and spleen were not enlarged. The stomach and intestines were carefully palpated for tumors and tenderness, but nothing could be found.

The urine, gastric contents and feces were normal. Blood pressure was 100 systolic and 70 diastolic.

March 9, a roentgenogram revealed a large irregular filling defect involving the middle third of the greater curvature of the stomach. The defect was permanent and did not change on palpation. There was no peristalsis along the involved area. On deep digital examination under the guide of the fluoroscope, marked tenderness was elicited over an area corresponding to the gastric defect. The other parts of the digestive tract failed to present any gross pathologic changes. Confirmatory reexamination showed exactly the same findings. The roentgen-ray diagnosis was malignancy of the middle third of the greater curvature of the stomach (Fig. 1).

Fig. 2 (Case 2).—Small irregular defect of the greater curvature.

Clinically, an intra-abdominal neoplasm was suspected. Its location, however, could not be definitely determined. It was pointed out that the clinical picture was not very characteristic of a gastric neoplasm, yet on the strength of the definite roentgen-ray findings, the roentgen-ray diagnosis was accepted as evidently correct, and exploratory laparotomy was decided on.

Operation and Result.—An operation, performed, April 7, revealed a large carcinoma involving the tail of the pancreas and spreading into its body. There were many adhesions between the tail of the pancreas and the corresponding portion of the stomach. After the adhesions had been separated, it was found that there was no involvement of the stomach by the carcinomatous process in the pancreas. No further surgical procedure was undertaken, and after a five weeks' stay in the hospital, the patient returned home.

Two months later, the patient developed jaundice, which was permanent and progressive. Shortly after the gallbladder became enlarged, the stools were pale, and itching developed. At no time was sugar found in the urine. In August, pain developed, and a tumor in the epigastrium became palpable. The patient died, November 8, almost two years after the appearance of the first symptoms.

CASE 2.—*History.*—F. M., a man, aged 54, married, a traveling salesman, seen, May 16, 1921, complained of loss of weight and weakness. The family history showed nothing of interest; the previous personal history was negative, except that he was a heavy eater and a very heavy smoker. No history of venereal diseases was elicited.

About sixteen months previously, the patient began to tire very easily. He was unable to do the same amount of work as he had done before, and was losing his business initiative. Being a very stout man, he ascribed his complaints to overweight, and therefore decided to reduce. During the following three or four months, he lost 38 pounds (17.2 kg.), while his condition gradually became worse. The appetite remained good all that time, and the bowels were regular.

During the following time, he continued losing weight gradually, though he had stopped dieting and ate as much as he liked. Several physicians treated him for nervousness and dyspepsia, without any apparent success. The patient had so far lost about 49 pounds (22.2 kg.). The appetite and bowels still remained normal. There was no pain.

Examination.—The patient was tired looking; he was of moderate height, and appeared much older than he said he was. He apparently had lost considerable weight, but still looked quite well nourished. The skin was extremely pale. There were no abnormal findings in the chest. Examination of the abdomen revealed a slight, localized tenderness on deep pressure over the left hypochondrium. No tumor masses were felt.

Examination of the urine showed a slight trace of albumin, no sugar and no other abnormality. Gastric analysis revealed: total acidity, 45; free hydrochloric acid, 20; no blood; string test, negative; feces, normal; no blood. The blood picture was that of marked secondary anemia. A Wassermann reaction was negative. The blood pressure was systolic, 105; diastolic, 75. The temperature was slightly subnormal. The weight was 142 pounds (65 kg.).

Roentgenograms taken May 26, 1921, revealed a small, irregular outline defect involving about 2½ inches of the middle portion of the greater curvature of the stomach. The defect remained constant during the entire duration of the fluoroscopic examination, and was seen on all the gastric plates, not changing its location or its appearance. Digital manipulation under the guide of the fluoroscope revealed marked definite localized tenderness over the gastric defect. The other parts of the gastro-intestinal tract failed to present any gross pathologic changes (Fig. 2).

The case being very obscure clinically, the roentgen-ray findings were gladly seized upon as the solution of the diagnostic problem, especially in view of the fact that the roentgen-ray evidence appeared to be of an absolutely definite character. It was noted, however, that the apparently small extent of the neoplastic involvement of the stomach was in disproportion to the long duration of the patient's complaints, and that at the same time there was complete absence of direct gastric symptoms. Remembering our previous similar case, the possibility of a carcinomatous involvement of the tail of the pancreas was also taken into consideration. Operation was decided on.

Operation and Result.—A tumor of about the size of a hen's egg and occupying the tail of the pancreas was revealed. The middle portion of the stomach was firmly adherent to the

tumor mass. The stomach was separated from the tumor with great difficulty. Outside of a slight erosion of the gastric wall, there was apparently no carcinomatous involvement of the stomach itself. There was evidence of infiltration of the middle portion of the pancreas, and marked glandular enlargement. The incision was then closed.

The patient improved after the operation remarkably, gaining in weight and strength, so much so that the correctness of the surgical diagnosis was doubted.

About three months after the operation, the patient began to complain of pain in the epigastrium. This pain was constant, varying little in intensity. Six weeks later, attacks of sharp, sometimes excruciating, abdominal pain began to appear, lasting from five minutes to half an hour, coming on from one to three times a day, usually being associated with diarrhea. Still later, icterus made its appearance. The skin, formerly white, became yellow-brown, so that the patient at times was taken for a negro. Loss of weight and strength and finally also of appetite was progressing. At the same time, a palpable tender mass appeared in the midgastric region. The patient died, March 12, 1922, about twenty-five months after the onset of the clinical symptoms.

COMMENT

It is comparatively seldom that a roentgenologist has an opportunity of making roentgenologic observations in cases of carcinoma of the pancreas, because this condition constitutes only about from 1 to 1.5 per cent. of all the carcinoma cases. If the lesion involves the head of the pancreas, we may, in well developed cases, obtain a characteristic roentgenologic picture, showing a marked outward bulging of the entire course of the duodenum, sometimes giving more or less marked outline defects of the pyloric portion of the stomach. If the lesion involves the corpus of the pancreas, we may obtain quite typical outline defects of the body of the stomach. Pancreatic cysts may cause marked displacement of stomach or colon. All such conditions have repeatedly been observed and diagnosed roentgenologically by us, as well as by many others, and the cases on record are numerous.

Outline defects along the upper and middle portions of the greater curvature of the stomach, due to extrinsic causes, may be produced, aside from the condition described in our cases, by accumulation of a large amount of gas within the splenic portion of the colon, by a large hydronephrosis of the left kidney, by a large tumor of the splenic portion of the colon, or by certain pathologic conditions of the spleen. Such instances are not rare and present no great differential diagnostic difficulties.

Roentgenologic observations in cases of carcinoma of the tail of the pancreas appear to be extremely rare. In fact, there seems to be, aside from our two cases, only one other somewhat similar case on record, namely, that of Schlesinger.[1] He mentions as an important differential diagnostic point that the defect in the greater curvature of the stomach caused by a carcinoma of the left portion of the pancreas remains stationary on repeated roentgen-ray examinations made at certain intervals, while a defect caused by a carcinomatous involvement of the stomach itself is found to be enlarging steadily. This is true. However, in cases in which a definite roentgenologic opinion is expected after the first examination, it seems to us that, as an important differential diagnostic point, an obvious disharmony between the roentgen-anatomic and the clinical findings in this type of case should be considered. Thus, in our first case, if the apparent extensive localized involvement of the midgastric region shown by the roentgen rays really had been due to gastric carcinoma, one should have expected that such a lesion, after being in existence for twelve months, would gradually have produced by that time definite gastric symptoms, evidence of hemorrhage, and probably also a palpable tumor.

In the second case, there is an obvious disproportion between the duration of the symptoms and the apparent extent of the anatomic changes, as demonstrated by the roentgen rays. The symptoms had been in evidence for sixteen months, and yet the roentgen-ray examination revealed only a small defect at the middle portion of the greater curvature of the stomach. In gastric carcinoma with symptoms for sixteen months, one would expect a much more extensive involvement of the stomach. At the same time, one would be justified in expecting, in such a case in which the lesion evidently was at the middle of the greater curvature, definite gastric symptoms, of which there were none.

That, clinically, a lesion of the pancreas was not suspected is not surprising, as in carcinoma of the tail of the pancreas, as long as the lesion is confined to the tail, there are no characteristic clinical symptoms. Later on, after the process has invaded the corpus and head of the pancreas, the well known typical symptoms are apt to develop.

An interesting clinical point should be mentioned with regard to the first case. Schmidt[2] has stated that bronzing of the skin in pancreatic lesions is always accompanied by sugar in the urine (bronze diabetes), this being due to an interstitial inflammation of both the pancreas and the liver. We should like simply to place on record as an exception to this rule our first case, in which there was a most characteristic bronzing of the skin without sugar in the urine at any time, and we reserve the right to discuss the clinicopathologic theories involved in this case at another occasion.

CONCLUSIONS

In carcinoma of the tail of the pancreas, roentgen-ray examination may furnish important diagnostic information.

Roentgenologic examination reveals a permanent, irregular outline defect at the middle portion of the greater curvature of the stomach.

Such an outline defect, though usually characteristic of, and interpreted as, neoplasm of the gastric wall, may sometimes be correctly recognized as being due to carcinoma of the tail of the pancreas, if the interpretation of the roentgen-ray findings is guided by a full and proper consideration of the clinical aspect of the case.

The main differential diagnostic feature in such instances is an obvious disharmony between the roentgenologic and the clinical manifestations, the latter showing a striking lack of direct gastric symptoms.

Urgent call is made for a closer cooperation between clinician and roentgenologist, and an interpretation of roentgen-ray findings along clinical lines—in short, for clinical roentgenology, because we sincerely believe that in clinical roentgenology lies the further development of radiodiagnostic possibilities.

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1. Schlesinger, E.: Roentgendiagnostik der Magen- und Darmkrankheiten, Berlin, Urban & Schwarzenberg, 1917, p. 210.

2. Schmidt, Adolph: Erkrankungen des Pancreas in Kraus, F., and Brugsch, T.: Spezielle Pathologie und Therapie innerer Krankheiten, Berlin, Urban & Schwarzenberg, 1921, p. 14.

RECIPROCAL RESPONSIBILITY OF THE HEALTH OFFICER AND OTHER PUBLIC OFFICIALS *

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Our social organization may be aptly compared to an intricate mechanical device, the efficient function of which depends on the coordination of its component parts. It is true that a machine and society are actuated differently; on the one hand, we have a controllable physical force as the *vis a tergo;* on the other, the physical plus the intangible psychic impulse.

Theoretically, society should function smoothly; as a fact, society is not a perfect organization, nor will it ever be. It is an expression of the public ideals, and it changes with the changing concepts and standards of the public mind. "The old order changeth, giving place to new." Among the public officials whose duty it is to strengthen and improve the social order there are few on whom the responsibility rests so heavily as on the health officer.

We have arrived at the understanding that health is fundamental. This means that public health is primarily concerned with the eradication of disease; and, further, in order to accomplish this purpose, it must assume the burden of combating ignorance, vice, crime, poverty—in fact, every condition inimical to an ideal environment for the proper development of the human being.

We have learned that the health of the community is an index to the progress and the happiness of its citizens. The intelligent immigrant now looks into the health statistics of a country before he seeks a new home; the life insurance company investigates before opening an office. "What of the schools?" used to be the stock inquiry; we now ask, "What are the death, birth and morbidity statistics?" as well as "What are the educational facilities?"

The reciprocal responsibility implied for excellence in the service of society holds good for all state commissions, bureaus and boards. The authorities or organizations which should reciprocally cooperate with these official bodies are those inherent in government, and the relation of the executive, legislative and judicial divisions of government to these state departments is clear.

Needless to say, the activities of any public service board should be free from political influence. The ideal condition, so far as such is obtainable, would be to have the service divorced entirely from all interference on the part of those persons holding positions by virtue of their political affiliations. A health board or any other public board, hampered by political machinations, is a travesty on efficiency. Discord and lack of harmony among the members and employees is the immediate and direct result. Aside from internal disruption, which is a corollary of outside interference, there is the more important result of the loss of usefulness in the service to the public. Therefore, to insure a maximum of efficiency, the appointments should be made solely on a basis of merit and fitness, and the term of office determined by results.

Cooperation presupposes an understanding by the legislative division of the government. Without pertinent, adequate laws, the regulation of public health matters is almost as impossible as when the politician meddles with the internal affairs of its organization.

In order to get the necessary legislative enactments, the people's representatives must be conscientious and well informed, or at least open minded to the appeals of those best qualified to know the subject. Unfortunately, it is too often the case that the majority allow themselves to be led by a few who, for personal or party ends, divert or nullify efforts toward needed legislation. There are objectives which are impossible of attainment without sufficient funds, but in nearly every state a practical health program with objectives defined and scientific proof of their practicability cannot be made effective because of a short-sighted policy as to the wisdom of this form of expenditure.

Every two years, or in some states annually, many statutes are passed and promulgated, often contradictory in phraseology and construction. Their enforcement seems not to disturb the public conscience. Laws without enforcement may have some educational value, but for practical purposes they are worthless. The psychology of making too many laws and not enforcing them is not quite clear. I do not know whether, knowing they will not be enforced, we pass them, or pass them, knowing that that will be the end. But it would seem that an enlightened judiciary would give heed to these measures which meet a social reform; doubtless, in many instances, they do, but there seems a singular lack of appreciation of the importance of those which are fundamental to the promotion of health. I think nearly every state in the Union has enacted an adequate vital statistics law; many, if not all, have the necessary officers and appointees to make the law effective, but through lack of understanding of the value of vital statistics to the state, neither the courts nor the public demand enforcement. Only thirty-four states are in the registration area for deaths; only twenty-three, for births. This indicates how imperfectly the law is obeyed or enforced. Physicians themselves refuse to meet the requirements of the government in giving the necessary data. If physicians fail to realize the reason for these records, why should we expect the district attorney to prosecute, even when there are flagrant violations of the law? The curtailing of appropriations may, under certain conditions, be excusable, but there cannot be any reasonable excuse why reasonable laws should not be enforced.

Among the institutions which have a reciprocal responsibility, the university and medical college stand preeminent. We are largely dependent on our medical schools for leaders and workers in social welfare, certainly for leaders in public health. Standardization of curriculums of all medical schools is evidence of our realization that there should be no B and C classifications, but that all medical schools should have the A rank. In foreign countries there are no B and C medical schools.

I might mention, in passing, that a knowledge of vital statistics, the sociological aspect of disease, prenatal and postnatal care in relation to eugenics, housing conditions, principles of sanitation and other subjects important to the health of the people would be of enormous value both to the practitioner and to the health officer. These should be taught in an adequately equipped and managed department of public health and hygiene. There are a number of universities, notably those of the Eastern states, which are beginning to appreciate the necessity

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

of properly teaching the broad subject of hygiene in all its phases. So far, because it is a too recent innovation, we note but few of the results of this undergraduate, postgraduate or special training. But the need is acknowledged, and before many years, the great influence which persons so educated will have in the direction of health and welfare departments will be apparent. The intimate connection with the medical school which offers this departmental course is clear. Cooperation between the two on the basis of mutual understanding is imperative to the success of both.

Volunteer health organizations have their responsibility. With a reciprocal attitude, they are valuable adjuncts to the activities of the health officials, and, if the program is suggested by the health authorities, they may be eminently useful. But there must exist a mutual appreciation of the functions and prerogatives of both, and an acknowledgment by these auxiliary bodies of the right of domination in health activities by the state board.

What is true of these state officials, medical schools and volunteer bodies is also true of municipal and county officials. I believe that when this is understood the state health authorities will be informed by the municipality or county of any movement to improve the sanitation of the unit and, after a survey, the state authority will decide the health work most desirable at the moment. We can conceive of a situation wherein control of specific disease—malaria, for example—might be a greater good to the community than the installation of a water plant or an improved system of sewerage or garbage collection. An investigation by a trained force would show that community the relative values of these different improvements, and indicate which would at that particular moment bring the most desirable returns.

Official cooperation is one of two of the fundamental principles underlying successful public health work. The other, which is of equally great importance, is public confidence. When the public attitude toward health measures is either passive or indifferent, it is impossible to do more than hold what has been gained.

Scientific facts on which health work is founded are as certain as those which lie at the basis of astronomy, for example. Both are the practical development and application of fundamental scientific principles and, however divergent in most respects, the physical laws which are operative in one are wholly applicable to the other. The realm of hygiene to which preventive medicine belongs is very great. Public health work is but the objective application of the principles, and these truly natural laws are as immutable as is the law of gravitation. That they may be subject to different interpretation does not in any way modify their activities; the result is the same regardless thereof. Hence the futility of the mental process of the obstructionists to health measures, whose chief arguments are that medical facts are theories and, as such, are subject to change with the seasons. I need hardly mention the great difficulty of convincing officials and the public that yellow fever and plague are insect-borne diseases, and that they could be completely eradicated by preventive measures. Strange as it may seem, there are many who still doubt the rôle of the mosquito and the fly in the transmission of malaria and typhoid. Incalculable misery and loss of life have resulted from this attitude of hostile skepticism on the part of both officials and public alike.

The great problem is how this scientific knowledge of the cause and prevention shall be brought to the public comprehension in assimilable form. Bitter experience has been the method heretofore. In fact, it seems to be necessary for thousands of lives to be sacrificed before a skeptical public can be convinced. The reason for this is apparently that words produce but a fleeting impression on the human mind, even though they contain the wisdom of the ages, while an experience, and especially a disagreeable experience, leaves a psychic scar which is indelible. We try to teach adults with but mediocre success; therefore, the hope, to my mind, lies in training the child during the impressionable age. I can see no reason why the principles of preventive medicine should not be taught in a modified form and in an interesting fashion throughout the whole school life. I am convinced that many children now teach their parents some of the fundamental rules of cleanliness and sanitation. In my opinion, much could be accomplished in this way toward the eradication of the acute infectious diseases, including, above all, malaria and hookworm infection.

It is my opinion, too, that the introduction of rational sex education into the schools would go far toward the prevention of misery and degradation which so often are the accompaniments of venereal disease. There is no doubt that, were such instruction logically and tactfully carried on, it would react favorably on the eugenics of the race. But all this requires cooperation on the part of others, and cooperation presupposes understanding. It is the understanding which is deficient.

Public officials are responsible to the public, in theory at least. Usually, the public concerns itself little about its officials; as a rule, it seldom knows of but few of them unless the latter have for one reason or another occupied a prominent place in the public eye. The public, too, is prone to forget, and so long as affairs progress passably well no one bothers much about public officials, having too many other things to attend to. That this indifference is more apparent than real, and that the public has at least a subconscious interest becomes promptly manifest in times of stress and calamity. In such an emergency, the public official who does not measure up to the proper stature in popular opinion receives unqualified condemnation; his responsibility to the people will become manifest with drastic suddenness. The health officer of a state, parish or municipality carries a burden of responsibility which at times is even greater than that of the chief executive. To appreciate this point, one need only recall how acutely this burden was realized during the great influenza epidemic. It is to the health officer, and to him only, that the masses look in times of such calamities; the other authorities become the mere executors of his policies.

If this could be transmuted into an all-time interest and a popular support of health measures which are so far-reaching, health work would become more effective, and the more effective, the more it would be appreciated. History shows that social movements always begin at the top. Through the ages, many reforms, political, social and religious, have begun in the universities. If the powers that be, officials of departments of state—executive, legislative and judicial—presidents of universities, deans of medical colleges and presidents of volunteer organizations, would come to an understanding, then public education in public health would follow,

and public support, financial and moral, would be assured.

ABSTRACT OF DISCUSSION

DR. C. W. GARRISON, Little Rock, Ark.: In order to control and prevent communicable diseases, we must recognize that the enforcement of isolation and quarantine regulations is a means of last resort—in other words, the last line of defense. Public health is challenging the health officer of today to initiate a program of right living, involving both eugenics and environment. Public health is as distinctly a branch of medicine as is surgery or obstetrics, and a health officer should not only be as highly trained technically in his specialty as the surgeon, but should possess unquestionable honesty, adaptability, courage, leadership and diplomacy. At present the public mind is somewhat confused as to the issue. There is competition between the cults and isms, and public health, but not until the practice of medicine for gain is eliminated from public health work, as with the part-time health officer, will there be a complete understanding. Complete official cooperation and public confidence, the two fundamental factors enumerated by Dr. Dowling as being necessary to success in public health work, will not obtain until this prerequisite is achieved, and, in addition, the education of the organized medical profession to its proper relation and responsibility, not only to the individual, but to the general public as well. A medical student should be taught that, when the state issues him a license or permit to practice medicine, it carries with it a duty and an obligation to obey the laws governing the practice of medicine and public health. Existing treaties between our government and other nations provide for the reciprocal notification of vital statistics. When the medical schools and the medical profession measure up to these reasonable legal standards, it will not be difficult to disseminate scientific knowledge in assimilable form, and secure full public support for the betterment of social welfare.

DR. S. W. WELCH, Montgomery, Ala.: I am very glad that Dr. Dowling brought into distinction the reciprocal relations of the municipal and the state and county authorities, with that of the health officer in the promotion of public health. We cannot get anywhere in America without dealing with politics. I heard a new definition of a politician sometime ago: a man who had succeeded in putting over a proposition which the other fellow had been trying to put over throughout his entire life and did not have sense enough to do. There are two classes of politicians in America. First, there is the politician that uses the people and handles the people for his own selfish purposes and to promote his own selfish end. The other type is the man who uses people and things to put over the great things of life. The health officer is supposed to be in the last class, and the office holder is supposed to be in the first, though there is not always such a sharp division between the two. When the health officer can convince the man who has high purposes to put over that the way to put those high purposes over is to do things which the public needs to have done for itself, then the reciprocity is complete. If we carry home the fundamental idea of the reciprocal relations of the two classes of officials, the one using the people to serve and the other using the people to be served, and when the man that is undertaking to serve will convince the fellow that wants to be served that it is the thing to do, then we have accomplished great purposes.

Occupation and Tuberculosis.—Many occupations in which the mortality from tuberculosis is high are not in themselves conducive to tuberculosis, but are occupations in which employees are underpaid or overworked, or which are sought by the physically unfit, the improvident, or persons ignorant or careless of the measures necessary to keep healthy. Outside of certain dusty occupations, the lowest tuberculosis mortality is found among the callings which are characterized by comfortable living and moderate exertions.—F. C. Smith, *Public Health Rep.* **38**:781 (April 23) 1923.

EPIDEMIOLOGY OF COLDS IN INFANTS

STUDIES ON RESPIRATORY DIVISION: XII *

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The degree of infectivity of the common cold has never been definitely ascertained. Indeed, the share of any outside infecting agent as a determining factor has often been questioned, and stress laid instead on temporary lowering of resistance, protein sensitization and similar factors. The ordinary method of establishing transfer of infection by tracing a new case to contact with a preexisting case is obviously difficult to apply to adult colds because of the numerous contacts that the average adult has in everyday life. It was thought that a study of colds in infants in whom contacts are fewer and comparatively easily traced might afford data of some value.

During the months of October and November, 1921, and January and February, 1922, careful records were obtained on the occurrence of colds among babies between the ages of 1 month and 2 years brought to infant welfare conferences in Chicago. Five hundred cases of colds were studied, a control series being provided by taking a similar record on a normal baby every time a cold record was taken. The term "cold" as used in these records includes such descriptive terms as coryza, rhinitis, "cold in the head," "nose-cold" and "running nose," but not tonsillitis, pharyngitis or "sore throat."

TABLE 1.—*Incidence of Colds in Infants Among Families with Other Members Affected*

	Mother with Cold		Father with Cold		Other Members of the Family with Cold	
	No.	%	No.	%	No.	%
Babies with colds	142	29	30	6	118	23
Babies without colds	66	13	33	6	81	16

There was a distinct history of a cold in some member of the family in 290 of the 500 families in which the baby had a cold, but in only 180 of the families to which the normal babies of the control series belonged. That is, 58 per cent. of the babies having colds at the time they were brought to the infant welfare stations had presumably been more or less in contact with other cases of cold in their respective families, while only 36 per cent. of those without colds had been subject to similar contact. The greater frequency of colds in babies in families in which some other member was suffering or had recently recovered from a cold was substantiated by the figures presented in Table 1.

These figures seem to indicate that in families in which there are babies with colds there is much more likely to be a history of cold in the mother than in families in which the babies are free from colds, but that the occurrence of a cold in the father is not manifestly related to a cold in the baby. In families in which members other than the mother or father, presumably in most cases other children, have colds, babies

* From the Department of Hygiene and Bacteriology, University of Chicago.

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

with colds are somewhat more numerous than babies without colds. The relatively close and prolonged association of mother and baby may account for the observed differences. So far as these facts go, they distinctly favor the view that at least some types of common cold are due to contact infection.

The age distribution of the babies with colds and babies without colds was not markedly different, as shown in Table 2. A somewhat larger proportion of the older babies (over 10 months), fall in the "cold" series, but the difference is not great.

TABLE 2.—*Age Distribution*

Age	Babies With Colds		Babies Without Colds	
	No.	%	No.	%
From birth to 2 months	9	1.8	13	2.6
From 2 to 4 months	42	8.4	64	12.8
4 to 6 months	80	16.0	83	16.6
6 to 8 months	82	16.4	95	19.0
8 to 10 months	72	14.4	68	13.6
10 to 12 months	65	13.0	57	11.4
12 to 14 months	45	9.0	42	8.4
14 to 16 months	31	6.2	23	4.6
16 to 18 months	24	4.8	16	3.2
18 to 20 months	23	4.6	11	2.2
20 to 22 months	8	1.6	15	3.0
22 to 24 months	19	3.8	13	2.6

The difficulty of determining by questions the exact date of the initial exposure and the onset of symptoms makes any opinion regarding the length of the incubation period largely conjectural. Nevertheless, certain facts obtained suggest a short period of incubation. In the 290 instances in which the baby had a cold, and in which there was also a history of a cold in other members of the family, colds were still in progress in 224 cases at the time the baby was brought to the infant welfare station; in eighteen, the family cold was just terminating; in four, it had ended two days before; in nineteen, from two days to a week; in twenty-five instances, information could not be obtained. The onset of colds in the family was given as stated in Table 3.

If data were available, the most definite information regarding the incubation period could be obtained from the history of a single exposure to an outsider. Only twenty-seven such instances appear in our records, the baby's cold developing after one day in eight cases;

TABLE 3.—*Colds in the Family*

Number of Days Before the Baby Showed Signs of Cold	
One day	31 families
Two days	21 families
"A few days"	69 families
From seven to ten days	96 families
Two weeks	48 families
Longer than two weeks	11 families
No information	14 families

two days in seven cases; three days in four cases; after a "few days" in four cases; one week in three cases, and two weeks in one case.

These figures again suggest that the incubation period of colds is very short. The value of such records is limited, however, since a contact with an outsider suffering from a cold which is followed by a cold in the baby is more likely to be remembered than exposure not followed by a cold. The recent occurrences of this sort are more likely to be remembered than the remote. The history of family exposure is perhaps, after all, more significant.

There is a general impression that babies that are breast fed have a greater resistance to infection than those fed artifically. On this point the data given in Table 4 were obtained.

It must be remembered that age differences and other factors are concealed in these figures. It should be stated in this connection that the babies brought to the welfare station are fed, when 6 months old, cereal in the form of farina or oatmeal, in addition to the breast

TABLE 4.—*Resistance of Breast Fed and Artificially Fed Babies*

	Breast Fed	Artificially Fed	Mixed Breast and Artificial Feeding
Babies with colds	211	182	107
Babies without colds	228	207	61

milk. The figures given do not warrant the conclusion that breast fed babies are as susceptible to infection with colds as those artificially fed. It is possible that a greater resistance in breast fed babies is more than neutralized by the close association with the mother.

The main function of the infant welfare conferences where these facts were collected is the care of well babies, the primary object being proper feeding. Babies with various ailments are, however, occasionally brought to the station. While the data on ailments coincident with colds are therefore very scanty and have to do largely with chronic conditions, they are somewhat suggestive (Table 5).

The table shows that such a condition as umbilical hernia, which is not closely related to the vitality of the child, is evenly distributed between the two groups,

TABLE 5.—*Ailments Other Than Colds.*

	Babies With Colds	Babies Without Colds
Umbilical hernia	3	3
Severe eczema	6	3
Heart lesions	2	1
Athrepsia	10	1
Syphilis	2	1
Rickets (extreme cases)	6	3
Anemia	2	1
Diarrhea	3	1

while other conditions, such as severe eczema, rickets and athrepsia, which presumably affect resistance or indicate a general lowering of resistance, are present in the babies with colds in much higher proportion than in the babies without colds.

SUMMARY

1. Records of 500 babies with, and 500 without, colds showed that the occurrence of colds in these infants was accompanied by a relatively high proportion of colds in the respective families.

2. The existence of a cold in the mother of a baby was accompanied by a cold in the baby in a disproportionately larger number of cases.

3. The general resistance to such exposure seems, however, quite high. Exposure to mothers' colds has occurred in nearly half as many cases of babies without colds as of those with colds.

4. The findings suggest a relatively widely disseminated virus of low infectivity, since babies with colds and babies without colds had been equally exposed to the colds of the father alone. Apparently the average contact exposure necessary for infection exceeds that ordinarily obtaining between father and baby.

5. The incubation period of colds is probably very short. Nearly all the babies' colds which were contracted after exposure within the family showed

symptoms before the preceding patient's cold had disappeared.

6. Coincident ailments, indicating lowered resistance, especially those of deranged metabolism, were much more common in babies with colds than in those without colds.

25 East Washington Street.

ABSTRACT OF DISCUSSION

DR. F. P. GENGENBACH, Denver: I want to ask Dr. Winholt whether his figures on the relative resistance of the breast fed and artificially fed babies actually represent the number of babies who are breast fed—whether he kept track of the percentage. Can you tell us what percentage of the breast fed babies developed colds that were exposed to colds?

DR. W. F. WINHOLT, Chicago: In the figures, the age element was omitted. Also, on account of the various methods of feeding, I do not believe I can answer the question.

CHRONIC CARBON MONOXID POISONING *

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The tragic results of acute carbon monoxid poisoning are so manifest, and the clinical aspects have been so thoroughly studied, that nothing will be said about this phase of the subject. Chronic carbon monoxid poisoning, on the other hand, although for a long time recognized, has not been given the attention it deserves by the medical profession; and, without a doubt, a considerable number of ailments and indispositions, not severe enough to be considered seriously, occur every year in a community that may be directly due to this ubiquitous gas, so characteristic of twentieth century civilization.

The Ohio State Department of Health [1] reported eighty-one cases of carbon monoxid asphyxiation, with thirty-four deaths, during the first ten weeks of the past winter. If this is true of carbon monoxid asphyxiation, how many are the cases of moderate and mild degrees of poisoning which are not reported or even suspected? That the number is large there can be no doubt. How great a rôle it plays as a predisposing factor to the development of other diseases it is difficult to say; that it is important would seem at first thought to be evident. It has been suggested that chronic poisoning increases the susceptibility, especially to pneumonia.

Wharen,[2] who has been making a study of the subject from an engineering standpoint, has found carbon monoxid present in unlooked for places and at times in surprising amounts. The following are some of his more striking findings; the iodin pentoxid method was used in making the determinations:

1. In a large repair garage, with no motors running for six hours: on the main floor, from 0.1 to 0.2 per cent.; in the repair shop, from 0.2 to 0.3 per cent.
2. In a gas engine laboratory, from 0.2 to 0.3 per cent.
3. In a large boiler room using coal for fuel, 0.2 per cent.
4. In a forge shop: before starting the ventilating fans, 0.4 per cent.; after starting the ventilating fans, 0.2 per cent.
5. In a laboratory after using sixteen Bunsen burners for two hours, 0.1 per cent.

These are the more striking findings, but here are some more which are quite significant: A street car heated with a coal stove, 0.05 per cent.; a furnace room of two houses, 0.1 per cent. and 0.15 per cent. In one of these, a defective breeching was found, which readily explained the result.

Wharen has also shown, after a careful experimental study, that stoves and furnaces can be a source of carbon monoxid in appreciable amounts. A reading as high as 0.2 per cent. was obtained in a room of 400 cubic feet with an improperly arranged draft. The same reading was obtained with a lid partly open. According to his results, any fuel is a possible source.

The literature is full of curious sources of poisoning, as, for example, a defective automobile heater allowing the exhaust gas from the muffler to leak into the car; and smoke from a neighboring chimney blowing into a bedroom. The importance of these findings is evident when it is realized that 0.05 per cent. in the air, when breathed for some time, will produce symptoms, and 0.2 per cent. is dangerous. However, there is evidence to show that some persons are decidedly susceptible to the gas and also that a certain degree of resistance will be established after repeated exposures to moderate amounts.

The air of the canyon-like streets of our larger cities during automobile traffic has been shown to contain an appreciable quantity. Haldane [3] found 0.066 per cent. on the platform of a station in London. He recommends that there should never be more than 0.02 per cent. of carbon monoxid when exposure is necessary for several hours; for exposures of less than an hour, 0.05 per cent. would not be objectionable.

Henderson and Haggard [4] state that exposure of about forty-five minutes to an amount of 4: 10,000 is perfectly safe and will not cause discomfort. Haldane, through personal experience, has shown that 0.045 per cent. in air will cause no symptoms in four hours; but on exercise at the end of this period, panting and slight palpitation of the heart was noticed. In another experiment, a blood saturation of 14 per cent. was found after inhaling air containing 0.027 per cent. of carbon monoxid for three and one-half hours. Here also no symptoms were noticed except shortness of breath and palpitation on exercise. In evaluating these results, it should be kept in mind that about one half of the carbon monoxid of the inspired air is absorbed, except toward the last, when saturation is approached, with consequent slowing up of absorption. The rate of absorption and the time required for symptoms to appear is proportional to respiratory exchange, and is shortened by the increased breathing of exertion. Haldane [5] found that symptoms do not become appreciable during rest until the blood is one-third saturated, but this does not hold true if exercises are taken. Death takes place in dogs after a percentage of about 84 has been reached, if pure carbon monoxid and air have been inhaled. However, death will take place at a lower saturation, approximately 72 per cent., if illuminating gas is used, showing that there are other toxic substances present. Henderson [6] makes the sig-

* Read before the Section on Practice of Medicine at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Carbon Monoxid Asphyxiation, J. A. M. A. **80**: 1408 (May 12) 1923.

2. Prof. G. B. Wharen, of the Department of Mechanical Engineering, University of North Dakota, will report his results in a paper on ventilation to be published later.

3. Haldane, quoted by Henderson, Yandell; and Haggard, H. W.: J. Indust. & Engin. Chem. **14**: 235 (March) 1922.

4. Henderson, Yandell; and Haggard, H. W.: The Physiological Principles Governing Ventilation When the Air is Contaminated with Carbon Monoxid, Indust. & Engin. Chem. **14**: 234 (March) 1922.

5. Haldane, quoted by Henderson and Haggard (Footnote 4).

6. Henderson, Yandell; and Haggard, H. W.: J. Indust. & Engin. Chem. **14**: 235 (March) 1922.

nificant statement that, as the symptoms of carbon monoxid poisoning are due to oxygen depreciation, it is safe to assert that even a somewhat greater saturation of the blood lasting only a short time would involve less physiologic ill effect than a prolonged period involving nearly full equilibrium in 1:10,000 of air.

What are the effects of repeated exposures to small or moderate amounts of carbon monoxid? Abundance of opportunities for exposure are offered in our various industries and also in homes, as Wharen has shown.

Headache, nausea and vomiting are evidences of an advanced degree of blood saturation, approximating at least 30 per cent. In the literature, a multitude of symptoms of varying degrees of importance are mentioned; tingling and twitching in the limbs; irritability; numbness of various parts of the body; feeling of weight in the chest; rigidity of the fingers and toes; attacks of shivering; extreme thirst; craving for sugar; various subjective heart symptoms, as labored beating; distress or pains referred to the heart, and respiratory distress. Objectively, there have been described pallor, loss of flesh, red patches on the cheek bones, shiny, glittering eyeballs, enlarged pupils and irregular pulse without manifestations on electrocardiograms. It has been suggested that the cardiac symptoms are due to vascular spasm. Luden,[7] who has described in detail the symptoms of poisoning, mentions the interesting point that the so-called coal-gas headache does not yield to the usual headache remedies, as acetylsalicylic acid and amidopyrin.

Six patients under my observation, on being questioned with regard to their symptoms, all mentioned that they did not feel well before the onset of headache. Four of these men were engaged in active physical work, and they noticed that their first symptoms were an ill-defined feeling of indisposition, lack of energy, palpitation of the heart and shortness of breath; in other words, conditions well described by the term fatigue. The beginning anoxemia could well explain these manifestations. One of the remaining two complained of a cold with a bronchial cough; the other, a blacksmith, of dizziness on stooping. All six patients later developed the characteristic headache and also gastric symptoms.

Three of these patients showed a red blood count above 6,000,000 and an eosinophilia of 5 per cent.; the other three, a count between 5,600,000 and 5,950,000, but a normal eosinophilic count.

To determine what effect small repeated inhalations of carbon monoxid would have on the body tissues, six guinea-pigs were exposed to air containing 0.1 per cent. of carbon monoxid for one hour. This was repeated daily for a week. A red blood count of the six animals at the end of the week averaged 6,700,000; the degree of blood saturation was between 25 and 30 per cent. Neither nucleated red cells nor other unusual cells were found. The only abnormal finding was an increase in the number of erythrocytes; blood chemistry examinations were negative. A necropsy performed on two of the animals showed nothing beyond evidence of an increase in the activity of the bone marrow.

As all the guinea-pigs had lost from 2 to 6 gm. in weight over a period of two weeks, it occurred to me to see whether an increased susceptibility to infection had developed. Two were inoculated intraperitoneally with a 1 c.c. suspension of tubercle bacilli of the human type, and one control animal with an equal amount. The two others were inoculated with *Staphylococcus aureus*, and likewise one control with a similar amount. The administration of carbon monoxid was continued as before.

At the end of six weeks the three inoculated with *B. tuberculosis* were killed and a necropsy was performed. One of the guinea-pigs subjected to carbon monoxid had a widespread infection involving practically every organ; the other one, similarly exposed to carbon monoxid, had a moderately widespread involvement, particularly noticeable in the spleen. The control animal had a moderate involvement of the peritoneum and a slight involvement of the spleen.

The results of the inoculation with the staphylococcus yielded less significant results. One of the guinea-pigs exposed to carbon monoxid died first, showing a well developed peritonitis. The control died next, showing a moderate degree of peritonitis; the last guinea-pig, which had also been exposed to carbon monoxid, showed at necropsy a well developed peritonitis and splenic tumor. The two animals subjected to carbon monoxid both showed more extensive lesions than the control.

It is well known that these tests are too few to form a basis for important conclusions; nevertheless, it appears to me that they are significant, and in the light of what is already known about the action of carbon monoxid on the body, and especially on the blood, it has seemed that chronic carbon monoxid poisoning produces a condition comparable to that of fatigue, resulting in lowered vitality and consequently a lowered resistance to disease, which may be the result of a recent infection or the flaring up of an old focus. The same increase in blood lactic acid is seen in the anoxemia of carbon monoxid poisoning as is seen in fatigue from exercise. Apfelbach [8] reports a decrease in strength in workers exposed to carbon monoxid gas.

Another point to be emphasized is that we should not wait for the classical symptoms of headache, nausea, vomiting and dizziness, indicating a saturation of 30 per cent. or more before suspecting poisoning. There are certain symptoms already mentioned above that make their appearance earlier; some are more or less equivocal, to be true, but nevertheless, when taken together with other factors in the history as occupation and manner of living, are significant and will lead the physician to make the necessary blood tests which are so helpful in making a diagnosis, if made shortly after exposure. I have found, in addition to the spectroscope, the Katayama [9] test, the tannin [10] test, and Haldane's method [11] very satisfactory, the latter revealing a saturation as low as 0.03 per cent. A polycythemia, especially if associated with eosinophlia, is significant of chronic poisoning. The Bureau of Mines has recently perfected an instrument which will indicate the presence and degree of saturation of carbon monoxid in the blood.[12]

CONCLUSIONS

1. As the chances for exposure to carbon monoxid are so great, it would be well for the physician to keep in mind the possibility of chronic poisoning when a

7. Luden, G.: Chronic Carbon Monoxid Poisoning—Its Immediate and Subsequent Manifestations, Mod. Med. 3:6 (Feb., March) 1921.

8. Apfelbach, cited by Kober and Hansen: Diseases of Occupation and Vocational Hygiene, p. 73.
9. Kober and Hansen: Diseases of Occupation and Vocational Hygiene, p. 62.
10. Hawk: Physiological Chemistry, Ed. 4, p. 216.
11. Bull. 42, Department of the Interior, Bureau of Mines, p. 20.
12. Science 57:16 (June 1) 1923.

patient presents himself with ill defined symptoms which cannot be explained otherwise.

2. Repeated exposures to carbon monoxid, but not in sufficient degree to cause acute poisoning, will cause symptoms similar to the results of fatigue, and can be explained by lowered amount of oxygen in the blood.

3. Just as a state of continued fatigue, so will a state of chronic carbon monoxid poisoning lower the resistance to various infections, or favor renewed activity of an old process.

4. When there is a possibility of exposure to carbon monoxid, it would be well to make a blood test. By the use of various simple laboratory tests, it is possible to diagnose an early, or a presymptomatic stage of chronic poisoning and ward off the possibility of serious results.

5. Preventive medicine has here a new field. Carbon monoxid poisoning is no longer confined to certain industries: the chances for poisoning are universal.

THE USE OF ANTISERUMS IN THE TREATMENT OF DISEASE*

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Thirty-five years have elapsed since Hericourt and Richet demonstrated the fact that the serum of dogs that had been actively immunized against a certain staphylococcus had, by transfusion, the property of curing otherwise fatal infections due to this organism in unprepared rabbits. This important principle of transferred or passive immunity has since that time been repeatedly demonstrated experimentally in connection with many other pathogenic bacteria and their toxins. It is fortunate that the first complete study of passive immunity by Behring and Kitasato was with the soluble toxins of the tetanus and the diphtheria bacillus, so that the results, not only experimentally in animals but also in the treatment of human disease, were so unequivocal that the study of the principles and practice of serum therapy has never since languished. And yet in the intervening thirty-three years, no other such striking instances of serum therapy have been encountered, no other so nearly perfect a remedy as diphtheria antitoxin has been discovered. Indeed, when one views in the aggregate the enormous mass of work that has been done in this tridecennial period, and glimpses the extraordinary technical and theoretical advances that have occurred in bacteriology and immunology, the practical results of serum therapy are, at first glance, discouraging.

Yet it is in no spirit of discouragement that I approach this difficult attempt at appraisal and the still more hazardous attempt at prophecy. If one admits that there is work for the theorist, it seems to me that nowhere is his help of more avail than in the welter of assertion pro and con in each particular problem of serum therapy. It is evident that the eventual establishment of the value of each antibacterial serum depends, and will depend, on the data collected and evaluated by clinicians, but I cannot admit with Sheara that correct evaluation at any given stage in the development of the use of an antiserum rests with the practitioner. If personal and often limited experience is fallacious anywhere, it is in this realm. With the increasing subdivision of labor, it is now rare indeed, and advisedly so, that the producer of a new antiserum is the one who employs it in the treatment of human beings. It is increasingly more difficult for him who has the human responsibility to keep abreast with bacteriologic and immunologic theory, to grasp and follow the chance experimental lead that may yield a modification of practical importance. The more correct, though temporary decision, then, as to the actual value of combating any bacterial infection by the use of an antiserum must, until general acceptance is arrived at, lie in literary evidence rather than personal experience, and literary evidence must be read in the light of a thorough understanding of the principles involved.

With the discovery of tetanus and diphtheria antitoxins in 1890, the problem of combating bacterial infections might have seemed essentially settled. All that seemed necessary was, first, to find the particular etiologic agent involved in each disease entity; secondly, to isolate it in pure culture; thirdly, to hyperimmunize an animal of convenient size with this culture or its products, and, lastly, to employ the serum of this actively immunized animal in the neutralization of the infectious agent in the naturally infected individual. Instances began to multiply in which this schematic procedure could be carried out in experimental animals.

In the next bacterial disease that was intensively studied by Pfeiffer and others, Asiatic cholera, it seemed that soluble exotoxins, similar to those produced in diphtheria and tetanus, were not primarily involved. The progress of infection with the cholera spirillum under the artificial condition of animal experimentation was found to be due to multiplication of the organism in the form of a septicemia, with toxic symptoms that seemed due secondarily to the terminal and incidental disintegration of the cholera organisms. An antiserum was prepared that rapidly provoked this disintegration—in other words, which contained what we now know as a bacteriolysin. This and other antiserums were soon shown to contain a host of other antibodies with specific action on the bacterium which gives rise to them; substances or properties that clump the bacterium in question (agglutinins); others which precipitate their extracts (precipitins); substances which unite with the bacterium to form an alexin (complement) fixing complex (sensitizers); and substances which render the bacterium in question more readily ingested by the phagocytes (opsonins, tropins).[1] Such studies, which still continue actively and fruitfully, have given us our factual basis and theories of infection and immunity. Among other things, we have come to recognize that certain antiserums are anti-infectious or antibacterial rather than antitoxic; that is, they act directly on the bodies of bacteria rather than to neutralize their products. The knowledge of these antiserums has established the firm basis of serum diagnosis. But only one of the many antibacterial serums that have been produced can be confidently asserted to have taken its place in the category of diphtheria antitoxin as an assured curative agent in human disease.

Let me at once present my promised appraisal of the actual curative value of antiserums (antitoxins and antibacterial serums). I limit the discussion to treatment as against prevention, and omit serums that have been used in the treatment of bacterial diseases in animals.

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. I do not wish to discuss here the individuality or the possible identity of these substances.

I have, for convenience, divided antiserums into four categories in respect to their value in treatment: (1) antiserums of undoubted value; (2) antiserums of probable value; (3) antiserums of possible value, and (4) antiserums of no proved value.

ANTISERUMS OF UNDOUBTED VALUE

Diphtheria Antitoxin.—There is no longer any dispute as to the curative value of diphtheria antitoxin, provided it is of standard potency as tested by a standard method, that it is administered early in the disease, and in severe cases is given in large doses intravenously. It may advantageously be concentrated. The death rate from this disease in twenty of the largest cities of the world (Park) has dropped from 66.9 per hundred thousand in 1890, to 19 in 1905. The normal mortality of from 35 to 40 per cent. in untreated cases falls to 7 or 8 per cent. (i. e., to one fifth) in all cases irrespective of time of treatment, and in cases treated on the first day, the mortality is negligible.

Antimeningococcus Serum.—The correct employment of an antimeningococcus serum of corresponding immunologic type has reduced the normal mortality of from 65 to 80 per cent. to from 15 to 30 per cent. in all stages of the disease.

ANTISERUMS OF PROBABLE VALUE

Tetanus Antitoxin.—This is of great value in prophylaxis, but less so in treatment. It may be estimated, however, that early, large and repeated intraspinal and intravenous injections reduce the mortality in treated cases about 20 per cent.

Anticobra-Venin.—This apparently enables those who have been bitten by *Colubridae* to resist otherwise fatal amounts of neurotoxin if administered early (Calmette).

Antianthrax Serum.—There is considerable evidence that an antiserum to *B. anthracis* notably reduces the mortality in the more generalized and severe type of human infection due to this micro-organism. Sclavo reduced the mortality in 164 treated cases from a normal of 24 per cent. to 5.3 per cent.

Antidysentery Serum.—This appears to be useful in infections due to the Shiga-Kruse variety of dysentery bacillus, if serum is prepared to contain both antitoxins and bacterial antibodies.

ANTISERUMS OF PROBABLE VALUE

Antipneumococcus Serum.—The recognition of at least four types of the pneumococcus by Neufeld, Dochez and Gillespie, and others has led to correct type diagnosis in each case of this disease and the use of a corresponding antiserum. There is no claim that results of importance have been attained with any but Type I infections (Cole and associates). It is certain that the mortality of treated Type I cases in the Rockefeller Hospital has been very low, but the question has arisen as to whether the mortality from this type does not vary markedly from year to year. Thomas, Locke and others have failed to obtain any striking curative results with Type I antiserum.

Botulism Antitoxin.—Experimentally in animals, this antitoxin is of marked value. It has not been tried in any considerable number of human cases. The necessity for injection before symptoms are evident would limit greatly its practical usefulness. The existence of at least two antigenic varieties of *B. botulinus* further complicates the problem.

Antigangrene Serum (Antitoxin for gaseous gangrene).—The varieties of anaerobic bacteria concerned in the gaseous gangrene of wounds renders appropriate serum therapy difficult. Recent experiences by French authors with a polyvalent serum designed to include antibodies for the ordinary wound bacteria seem encouraging.

Antiplague Serum.—A potent antiplague serum is produced with difficulty. Recent results in Queensland and in Cuba indicate that a proper serum given intravenously markedly reduces the otherwise appalling mortality in this disease.

Anticholera Serum.—For many years, no significant results were obtained with antiserums to cholera. The recognition by both French and German bacteriologists that the cholera vibrio produces a soluble toxin, and the utilization of this toxin as well as the bacteria themselves in immunization, has given an antiserum which in recent epidemics, particularly in Russia (Salimbeni), has seemed very efficacious.

Antigonococcus Serum.—This is alleged to be of value in systemic and metastatic complications of gonorrhea, and in conjunctivitis.

Antiserum for Yellow Fever.—Noguchi reports favorable results in the early treatment of yellow fever by means of an antiserum to *Leptospira icteroides*, the presumable causative agent in this disease.

Antipollen Serum.—Antiserums to pollens which cause hay-fever have been used with palliative effect, but no alleged permanent benefit.

Serum of Recovered Scarlet Fever Patients.—Beneficial results have been claimed.

Serum of Recovered Poliomyelitis Patients.—There is some evidence that this serum, when obtainable, is of value in treatment (Amos and Chesney, 1917). An antistreptococcus serum has also been employed in this disease, but the relation of this microorganism to poliomyelitis is by no means generally accepted.

ANTISERUMS OF NO PROVED VALUE

In the category of antiserums of no proved value are listed antiserums, often with many variations in their methods of production for the specific micro-organism in question, which have failed to establish a claim to therapeutic efficiency.

Antityphoid Serum.—There have been no claims of any usefulness except with serums produced by Chantemesse and by Rodet, whose results have failed of corroboration.

Antistreptococcus Serum. — There is nothing approaching acceptable evidence of the successful treatment by serum of any of the streptococcal infections, except possibly in the complications of scarlet fever (Moser). Many definite reports of failure to produce results are available.

Antituberculosis Serum.—Many varieties of antituberculin and antibacterial serums have been tried. The claims of Maragliano are definitely disproved, and the antitoxin of Marmorek, although it received some casual approval, has never been accepted as of value.

This personal appraisal of serum therapy cannot, I believe, be accused of overenthusiasm. It is purposely made as conservative as possible. If my estimate is correct, there are only two antibacterial remedies of a specific sort that have been discovered in thirty-odd years, and the discoveries of these two were twenty years apart. It is certain that even diphtheria antitoxin and the antiserum for meningococcus can be perfected

in their preparation and in method of administration. The survey of the other less successful attempts at serum therapy is, however, I feel, in no way discouraging, though progress has certainly been slower than might have been anticipated. And yet the results accomplished, such as they are, far outweigh the effort expended. I interpret the present status of serum therapy as a stimulus to renewed and increased investigation in bacteriology and immunology.

LINES OF INVESTIGATION ALONG WHICH PROGRESS HAS AND WILL BE MADE

It is clearly evident that, with our increasing knowledge of bacteriology, each micro-organism, particularly in its pathogenic attributes, is, in a way, a law unto itself. A set of conditions operative with one variety of bacteria, and even with a single type of a given bacterial species, may not be true with any other. Knowledge of the natural laws that have been found to be operative in one infection, and in resistance to it, although they serve as a guide in studying another infection, may actually blind us temporarily to the essentially different features of the new infection that we are considering. There is need, then, of repeatedly considering each problem afresh, with all experimental resourcefulness gained from other experience, but without too definitely preconceived notions of what will be found.

Mode of Infection.—We are continually recasting or modifying our ideas as to how any given pathogenic micro-organism produces the sum total of its harmful effects. Does a given bacterium produce its effect largely by intoxication as does the diphtheria bacillus, and is this intoxication under the actual condition of growth in the animal body due to the liberation of a soluble toxin, or of a so-called "endotoxin"? And what is the nature of an endotoxin? Is it simply a toxic disintegration product of protein of nonspecific nature, or is it endowed with specific properties of origin, as is the case of an exotoxin? Or does the micro-organism produce its results by simple multiplication? It is evident that there are toxic substances formed in the body which cannot ordinarily or readily be produced in a culture medium. This is true, for example, of the cholera vibrio, and recent advances in producing an effective anticholera serum, if they are corroborated, are based on the utilization of this soluble toxin in immunization. Infections produced experimentally in animals, although of the greatest value, are not the parallel of what occurs in the human body. Again, the cholera vibrio, which produces a banal septicemia in a guinea-pig, does nothing of the sort in man. Here, studies of the infectious diseases of animals, with the possibility of reproducing such infections experimentally in the very animal which is the natural sufferer from the disease in question, are of great value.

It is evident, then, that a correct estimate of the relative importance of the intoxication and the infection produced by each micro-organism is essential in producing the corresponding antibodies in a serum designed to combat it.

Bacterial Types.—Much recent progress that has been made in serum therapy has been dependent on the recognition that there are a number of types or varieties of many bacterial species, all of which, although they may differ quantitatively in their effects, produce the same disease. This has been definitely shown to be true in the case of meningococcus infections, and the recognition of this fact has given the successful results that are at present obtained. A similar variety of types is known to exist in the pneumococcus, although here the recognition of type varieties has not, as yet, yielded striking practical results, for other reasons of many of which we are at present unaware.

Any eventually successful antiserum for streptococcus infections must at least include antibodies that correspond to the antigenic type of streptococcus concerned in the particular case to be treated. A truly polyvalent serum should contain antibodies to all types of streptococci, and it is probable that not all types are as yet recognized. Methods for the rapid diagnosis of types, which are already available in connection with the pneumococcus and the meningococcus, should be developed with organisms like the streptococcus and *Bacillus botulinus*, if it is found that a monovalent serum is better than a polyvalent, as may prove to be the case.

Methods of Immunization and Production of Antiserum.—Great advances have been made in hyperimmunizing animals for the purpose of producing an antiserum. These advances include the choice of route of inoculation and the spacing of injections, which also bears on the rapidity of production of the antiserum. The material used for immunization, in other words, the bacteria and bacterial products employed, is of great importance. Should organisms as they grow in artificial mediums be utilized, or should their soluble products alone be employed? Would it be better to use a "humanized" culture contained in the blood or pus from a fresh human lesion? Should cultures with virulence increased by passage through animals be employed? These are all questions that have arisen with an organism like the streptococcus, and never entirely answered even for this micro-organism, to say nothing of other bacteria.

The animal to be chosen for the production of antiserum is another matter that has not been so fully considered as it deserves. We have, perhaps, erred in choosing large animals for the mere fact that more serum can be obtained from them. It might be better, perhaps, as Kyes has suggested in the case of antipneumococcus serum, to use an animal naturally resistant to infection, the hen, for instance, in order to produce more potent antibodies.

Concentration of Antibodies.—The concentration of antibodies increases the potency of an antiserum, makes it possible to inject relatively larger amounts of the essential material with less inconvenience, and avoids or minimizes the toxic substances present in any foreign protein. Both chemical methods (diphtheria antitoxin (Gibson) and specific methods of precipitation (Gay and Chickering; Huntoon, with antipneumococcus serum) may be utilized to bring about this result.

The Essential Factors Concerned in Natural and Acquired Resistance.—The great and deserved emphasis that has been laid on the discovery of the various antibodies in immune serum has perhaps led us too far away from the consideration of the importance of cellular participation (Metchnikoff) in all processes of resistance, both natural and acquired. We judge that the eventual disposal of micro-organisms in the body usually depends on cellular activity, although it may be enormously influenced by the properties of serum. Recently, the importance of the fixed tissue cells (Kyes) of the clasmatocytes (Gay and Morrison), as well as of the polymorphonuclear leukocytes, has been

attracting interest. There are instances of solid protection from bacterial diseases, notably typhoid fever, which are not associated with the presence of antibodies in the recovered individual and must, therefore, be due to some newly acquired property of resistance resident in the body cells. It is by no means clear what effect a complete recognition of the importance of the cells, as against fluids of the body, will have on passive immunization, but one can at least conceive of immune-cell-extract therapy, in perhaps a new sense.

Route of Administration of Antiserum.—One of the most definite lines of progress in serum therapy has been in the recognition of the importance of putting the serum where it will do the most good; in other words, at the point of localization of the infection under consideration. It is certain that the success of serum therapy in meningococcus infection has been due largely to the intraspinal injection of the serum, or, in certain cases when the micro-organism is found in the circulating blood as well as in the meninges (Herrick), to combined intraspinal and intravenous injections. Whatever increasing success has been obtained in the therapeutic use of tetanus antitoxin has depended on the more or less successful attempt to break or forestall the combination between nerve cell and tetanus toxin by a similar utilization of these two routes of inoculation.

Serum therapy, in spite of its thirty-five years, is yet in its infancy as a science. Its coming of age will depend not only on the continued labor of bacteriologists, immunologists and clinicians, but more than all on those of them who, although aware of tradition, constantly visualize their problems anew.

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ABSTRACT OF DISCUSSION

DR. WALTER V. BREM, Los Angeles: Dr. Gay does himself an injustice by calling himself a theorist; there are theorists and theorists, and Dr. Gay is a practical theorist when he draws such practical conclusions as he has drawn in laying this matter before us. The final decision about biologic preparations must be made by investigators and not by general practitioners. I have been in close touch with the practical aspects of this matter. Many general practitioners do not even know the distinction between a vaccine and a serum, and the term "vaccine" or "serum" has been applied to such products as arsenical solutions for the treatment of syphilis. I was discussing vaccines with a physician and arguing for their guarded use, and the physician with whom I was talking said that he had such a great faith in them that when he gave a patient a dose of vaccine and had a little left over he took it himself. The difficulties are due to the fact that a great many men who are using these biologic preparations are not familiar with the natural course of disease, uninfluenced by treatment. They must treat patients; they must give something. The patients demand it, and the medical profession, being human, is eager to believe that the remedies they administer are the remedies that are causing the beneficial results. We know that most infectious diseases are self-limited. When the biologic preparations are used and the patients recover, it is difficult for one not to believe that the preparation did it. Many of us fall prey to the fairy tales told by the commercial houses in their advertisements, and those who are not on their guard can be readily deceived. We must remember that immunity to the infectious diseases, with only a few exceptions, is probably a cellular immunity, due to cellular reaction, and the antibodies produced in the serums are not often considered in the immunity process. For instance, in typhoid fever in human beings we frequently meet bodies present which will dissolve the typhoid bacilli, like sugar. These are present very largely in normal persons, and yet human beings have typhoid fever. On the other hand, rabbits, which are highly immune to fever, have no living substance in their blood, even after vaccination, while, on the other hand, they will have complement fixing bodies in high concentration, and human beings who recover from typhoid have practically no complement fixing bodies, or they arise in a slight degree.

DR. J. C. GEIGER, Washington, D. C.: Dr. Gay has mentioned treatment by botulism antitoxin. There is no doubt, as far as experimental purposes are concerned, that in the laboratory we have antitoxin that protects our animals 100 per cent., provided it is given at the same time as the toxin. But there is a limit to this of which I have some evidence, but which I should not perhaps reveal at this time, as it is the laboratory information of another man. There is not unlikely a limit to the time at which botulism antitoxin may be given effectively after the toxin. That limit is around twenty-four hours. The incubation limit of botulism cases is from twenty-four to forty-eight hours. There is another danger. Dr. Gay has brought up the question of types. Curiously enough, in a recent survey of a certain district of the United States we ran into a ranch which had had five outbreaks of botulism on it, and in every instance everybody on the ranch had died. The soil of the ranch contained type B botulinus. The food from the ranch, which was grown on the ranch, was type A. There are some very anomalous data. The result of some experimental work will soon be published on that point. I have had unfortunate experiences with most cases of botulinus antitoxin—100 per cent. mortality. But that does not do away with the use of the antitoxin. I do not think we are justified in calling cure due to antitoxin if we have not used the antitoxin within forty-eight hours.

CLINICAL STUDIES OF QUINIDIN

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This paper embodies the results of the study of sixty-one cases of auricular fibrillation treated with quinidin sulphate in the wards of the Cook County Hospital.

To the sixty-one patients under observation, seventy courses of quinidin were given. The patients ranged in age from 25 to 79. Twenty-five of the patients were under 40. In thirty-three cases the heart disease was of the rheumatic type, and in sixteen, of the arteriosclerotic; in the others, various etiologic types were represented. The duration of the heart disease ranged from a few weeks to many years; as to the duration of the fibrillation, we have no data of value.

Four conditions governed us in the selection of cases. 1. Compensation was present at least to such a degree that the patient had no edema and could be up and about the ward without dyspnea. No patients were given the quinidin in the presence of manifest heart failure. 2. No patients were accepted for treatment who gave a history of having had symptoms justifying the probable diagnosis of former emboli. 3. Patients with mental symptoms, which are not uncommon in old arteriosclerotic patients, were not given quinidin. 4. No patients are included in this series in whom the cardiac condition was only an incidental complication in the course of some other disease. It follows almost as a corollary of the first condition that most of the patients received digitalis prior to the administration of the quinidin. The patients were confined to bed during the course of the treatment.

PATIENTS IN WHOM NORMAL RHYTHM WAS RESUMED

In one patient included in the series, the heart resumed normal rhythm before the quinidin was given. Originally proved to have auricular fibrillation, he was sent for a confirming electrocardiogram on the morning of the day on which it was planned to begin treatment. After his return to the ward, the initial dose of quinidin was given; shortly thereafter it was reported that the last electrocardiogram showed sinus rhythm. The case is cited in some detail, since it illustrates how the fibrillating auricle, perhaps even in cases of fairly long duration, may spontaneously resume the normal rhythm. With the omission of this case from further consideration, we have sixty cases in the series. In two instances, the rhythm became regular, but the electrocardiogram showed flutter, with regular block. Normal rhythm was resumed in seventeen, or 28.3 per cent., of the sixty cases. Of the patients more than 40 years of age, nine, or 25 per cent., showed resumption of the normal rhythm; of those under 40, eight, or 32 per cent., became normal. Six, or 18.3 per cent. of the thirty-three cases classed as rheumatic, returned to sinus rhythm. Of the arteriosclerotic group, sixteen in all, seven, or 43.8 per cent., returned to normal rhythm. It will appear later that this difference in response between the two groups was essentially reversed so far as clinical benefit to the patients was concerned. One hypertensive case and three of undetermined etiology made up the rest of the group.

Five of the seventeen patients have maintained the normal rhythm for three months or more. One is known to have been normal for eight months; when last seen, the rhythm was still normal. This patient had a long and stormy period in the hospital before the quinidin was used. The clinicians who have seen her recently have not agreed as to the measure of clinical improvement resulting from the restoration of the normal rhythm. It is our conviction that the persistence of the normal rhythm has been of real benefit to this patient, aiding materially in the maintenance of fairly good compensation. Another of these five, seen five months after the restoration of sinus rhythm, still had the normal rhythm, but was not compensated. The other three are distinctly better, and apparently this improvement is largely due to the persistence of the normal rhythm. Somewhat more than one sixth of the group showing restoration have thus shown incontestable clinical improvement over a period of three months subsequent to the resumption of sinus rhythm. Two of these cases had so-called "rheumatic hearts"; in the third case, the etiology was undetermined. Of the other patients with a return of normal rhythm, one, with an old rheumatic heart, is known to have been normal at the end of one month and to have expressed himself as feeling better than he had for a long time. He was especially gratified by the disappearance of the sensations associated with the cardiac irregularity. Another patient was found with normal rhythm and in generally good condition after sixty-nine days. In six of the seventeen patients, therefore, the return to sinus rhythm may be regarded as quite worth while; these patients have been improved by the quinidin.

Of the other ten patients, one was seen twelve days after the resumption of sinus rhythm, at which time she was feeling very well. In a second patient, the fibrillation returned after four days, although she was taking 3 grains (0.2 gm.) of quinidin twice a day; she was put on 5 grains (0.3 gm.) three times a day, and two days later the normal rhythm was again resumed. Six weeks later she returned to the cardiac clinic with fibrillation. A third patient was readmitted to the hospital with fibrillation, forty-eight hours after his discharge. Another, a young woman who left the hospital against our advice, since we felt that she was unable to undertake her household duties, was seen some six weeks thereafter by a visiting nurse, who reported that this was the sickest heart patient she had ever seen. One elderly woman returned for examination after fifty days, at which time sinus rhythm was still present. Twenty-three days thereafter, she was readmitted with fibrillation and decompensation. After three days of treatment with digitalis, she was put on quinidin, with the restoration of normal rhythm after another three days. Fibrillation was apparent again four days later, and twelve hours subsequently, a hemiplegia developed; shortly thereafter, she died. Two other patients are known to have died; one developed an embolus of the right leg while he was taking quinidin, whereupon the drug was stopped; two days later the rhythm became normal. There was, however, no improvement in his condition, and ten days afterward he died. Since the embolus occurred before the restoration of sinus rhythm, it is hard to prove any relationship of cause and effect between the quinidin and the embolus. The other man was given quinidin and digitalis simultaneously; after seven days, sinus rhythm appeared. Very soon he went home, against the advice of the house physician; four days later he attended the cardiac clinic, at which time his general condition was better than at the time of discharge. He was advised to continue the small doses of quinidin, but the digitalis was stopped. Early the next day he died suddenly; necropsy was not performed. Assuming that the patient already mentioned as having been found very sick did not recover, four of the seventeen patients have died. Three patients of the group have been entirely lost to us.

PATIENTS IN WHOM NORMAL RHYTHM DID NOT RETURN

Of the forty-three patients who did not return to normal rhythm, six are known to have died; thirteen have been under treatment in the hospital following readmissions, and one is still in the hospital, never having recovered sufficiently to permit of his discharge. In attempting to estimate the relative status of the patients in the two groups (one made up of the patients who resumed normal rhythm, and the other of those in whom fibrillation persisted), it must be borne in mind that of the four deaths among those who resumed normal rhythm, one was due to embolism which occurred after the return of fibrillation, and the other resulted from gangrene of the leg, which began before fibrillation had been succeeded by sinus rhythm. It is fair to omit these cases altogether in undertaking a comparison of the two groups. Of the group with the persistence of fibrillation, five, or 11.8 per cent., have died. This does not include one patient whose death may have been the result of the quinidin; of fifteen who resumed sinus rhythm, two, or 13.3 per cent., have died. Of thirty-seven patients who did not resume sinus rhythm, fourteen are known to have required further hospital care; this amounts to 37.8 per cent. Of the other patients who resumed normal rhythm, we have been able to follow ten; of these, only two, or 20 per cent., have returned to the hospital for

treatment. Certainly, we have here presumptive evidence that the restoration of the normal rhythm does favor the maintenance of compensation without added danger to the patient.

UNTOWARD EFFECTS

The introduction of quinidin as a remedy for auricular fibrillation and other cardiac arrhythmias has provoked much discussion regarding the toxic effects of the drug. These toxic effects may be roughly grouped as (1) the minor toxic effects commonly produced by quinin; (2) emboli; (3) rapid ventricular rate, and (4) sudden death.

Minor toxic effects were observed in nine patients of our series. These manifested themselves as dimness of vision, spots before the eyes, weakness, tinnitus, nausea and headache. The appearance of such symptoms was the signal for the discontinuance of the drug. In only two cases did the symptoms show themselves with any severity; in one, "the patient showed toxic symptoms, vomiting, headache and ringing in the ears"; in another, "the patient complained of dizziness, palpitation, diplopia and dimness of vision." In four of the cases, attempts were again made after a few days to administer the quinidin, but in every instance similar symptoms appeared. The dosage necessary to produce such results varied widely; one patient had taken 6.2 gm. in the course of a week before the symptoms were observed; another patient, shortly after the test dose of 3 grains (0.2 gm.), showed the most severe symptoms observed in the patients of this group.

Strictly speaking, emboli and the rapid ventricular rate are not "toxic effects," but are rather untoward features associated with the therapeutic action of the drug. Four patients in this series showed signs of embolism during the treatment or shortly thereafter; in no case did the embolus follow the onset of sinus rhythm. One patient complained of pain in the right leg on the fourth day of treatment, after he had taken 3.4 gm. of quinidin; the drug was stopped; two days later it was noted that the leg was very blue, cyanotic and cold; on the same day (two days after the quinidin was stopped), sinus rhythm was resumed. The rhythm remained normal, but the patient's general condition did not improve, and nine days subsequent to the restoration of normal rhythm, he died. We have already discussed, at length, the history of another patient who died a few hours after the reappearance of fibrillation following three days of normal rhythm. In a third patient, embolism of the left leg occurred on the third day of treatment without the appearance of sinus rhythm. The quinidin was stopped. Death occurred nine days later from a pulmonary embolus, demonstrated at necropsy. The fourth patient died, with the symptoms of pulmonary embolism, four days after the course of treatment with quinidin had been finished. In one other patient who did not return to normal rhythm, a pulmonary embolus was diagnosed, but there was some doubt as to the certainty of the diagnosis. One man, who had been given a course of quinidin in July without success, was brought to the hospital in September with cerebral embolism; the fibrillation was still present. As we have indicated in the statement of the conditions which governed our choice of cases, we respect the prevalent opinion as to the danger of embolism as a sequela of successful quinidin therapy to such an extent that we refused to use the drug in any case in which there was a history of a prior embolus, yet we do not feel that the question of the relationship of quinidin therapy to the production of emboli is settled, however attractive the theoretical basis for such a relationship may be. In our own minds, there is a very grave doubt that the occurrence of embolism subsequent to the use of quinidin is more frequent than as a complication of heart disease in general. When figures covering many more cases than are here reported are available, and when such figures are compared with those showing the incidence of embolism in heart disease irrespective of treatment, we shall be able to reach a conclusion as to the real danger of embolism as an accompaniment of quinidin therapy.

A rise in the ventricular rate has been noted by many observers, and often is so marked as to make the further administration of the drug inadvisable. In making our observations, we stopped the drug when the rate went above 130. In thirteen of the patients in our series, this rapid acceleration of the rate appeared. In five instances, a second attempt was made to give the quinidin; in two of these, the quinidin was given alone and the rate quickened as with the first attempt; in three instances, digitalis was given with the second course of quinidin; in one case, the ventricular rate was accelerated as before; in a second, the rate did not become rapid, but the fibrillation was unchanged; in the third, the combined use of the two drugs was followed by the return of sinus rhythm. In connection with the subject of cardiac rate, it is interesting to note that in two instances the rate was not over 70 throughout the course of the quinidin, and in two other instances it was not over 80. In fourteen of the seventeen patients returning to normal, the rate, after restoration, was not over 80.

Overshadowing, in interest and importance, the other untoward effects of quinidin is the occasional occurrence of sudden death, of which instances have been reported by various observers. In our series there was one case which must be discussed in this connection. The patient was a woman, aged 39, who had a double mitral lesion, with a history of scarlet fever in childhood and of rheumatism eight years before coming under observation. Decompensation was marked on admission. She was given 20 minims (1.25 c.c.) of tincture of digitalis three times a day for seven days. At this time her dyspnea was less marked, the edema of the ankles had disappeared and the liver was much smaller than before; the apical rate was 72; there was no pulse deficit, and the blood pressure was systolic, 148, and diastolic, 84. After the digitalis had been stopped for one day, quinidin was given in two doses of 3 grains (0.2 gm.) each, one at 10 a. m., and one at 4 p. m. At 6 p. m., the patient became cyanotic and dyspneic, and the pulse was weak; a digitalis preparation was given intravenously, and the pulse improved. Her condition was fair during the evening. About 2 a. m. she suddenly became much worse, and died before the house physician reached the ward. However strongly we may feel that the whole course pictured here might have occurred with any person sick of heart disease, we must admit that the symptoms described came on very soon after the second small dose of quinidin, and that the onset of serious symptoms was followed in a few hours by the death of the patient. Moreover, one of our patients resumed sinus rhythm after having received only 6 grains (0.4 gm.) of the quinidin, and another, shortly after the administration of 3 grains (0.2 gm.), showed vomiting, headache and dizziness, with a rise of the ventricular rate to 140. The electrocardiogram taken after the first dose of quinidin showed

a definite bigeminus in the first lead; no ectopic beats were seen in the other two leads. The question arises as to the effect of quinidin on a heart already showing early signs of digitalis intoxication. A definite and continuous coupling was not present. We have used digitalis and quinidin together without ill effect; yet the appearance of this tendency to coupling reminds us of a case without fibrillation in which quinidin was given because of numerous ectopic ventricular beats. Soon after this man's admission, digitalis was stopped because of a coupled rhythm. After twenty days, digitalis was started once more, this time in doses of 10 minims (0.6 c.c.) three times a day, and continued for nine days. A test dose of quinidin was given on the last day of digitalis administration; for two more days the quinidin was given in doses of 5 grains (0.3 gm.) three times a day. On the second day, after 30 grains (2 gm.) had been given, a complete bigeminus appeared, and the quinidin was stopped. These cases suggest that in cases in which digitalis intoxication has shown itself by heightened irritability of the cardiac muscle, quinidin given simultaneously or shortly after the digitalis has been stopped may be dangerous.

EFFECT OF QUINIDIN ON BLOOD PRESSURE

An attempt was made to follow the effect of the quinidin on the blood pressure. In twenty-five cases (excluding those with a pressure of 160 and over), eighteen showed differences in the systolic pressure, before and after the use of quinidin, of 16 points or less. In auricular fibrillation, in which condition the determination of the blood pressure is notoriously inaccurate, such a difference is entirely without significance. In these twenty-five cases, the average systolic pressure before the use of quinidin was 127; after its use, 123. In one case, the pressure fell during the treatment 40 points; in another, 38. In nine cases with pressures over 160, the average pressure before quinidin was 190; after quinidin, 171; in seven of the ten cases, there was a fall of 10 points or more. In five other cases, the pressure was estimated by the method of James and Hart; the mean systolic pressure rose 8 points in one case, 2 in another; it fell 2 points in one, 5 in a second and 10 in a third. Study of the pressure in the cases which resumed sinus rhythm was without significance.

DOSAGE

In the administration of the quinidin, the course was always begun with small doses to test the patient's susceptibility to the drug. The test dose consisted of two doses of 3 grains (0.2 gm.) each, given at intervals of four hours; if no untoward symptoms appeared, the real therapeutic attempt was started the following morning. Various schemes of administration were employed. Through three days, 5 grains (0.3 gm.) was given three times a day; then for four days, 6 grains (0.4 gm.) was given three times a day; twenty patients were started thus, of whom five resumed sinus rhythm; one of these patients had two courses of treatment, returning to normal both times, once after six days and once after four; one returned to normal after taking 6 grains (0.4 gm.) of quinidin, and another after three days of the treatment; the other two returned after four and seven days, respectively. In five patients, the course was varied so that after three days, the dose was made 5 grains four times a day for two days, and then 5 grains six times a day for two days; all five were given the full course; two resumed normal rhythm, and a third showed regular rhythm, the result of flutter with a regular block. In ten patients, the quinidin was given in doses of 6 grains five times a day over a period of from four to six days; one patient took 13 gm. in seven days without result or unfavorable symptoms; two of the patients in this group returned to normal, one after two days, and one after five days; in two cases, the quinidin was stopped because of the rapid ventricular rate, once after four days, and once on the second day. In the other cases, the method chosen was varied for different reasons, especially because of the early onset of normal rhythm or of toxic symptoms. Two of this group of cases deserve particular mention; one was given, in his second course of treatment, 19.6 gm. of quinidin in twelve days, with the development of a regular rhythm which was due to flutter with regular block. Three months later, another attempt to restore the normal rhythm was made. After 2.6 gm. had been given, the quinidin was stopped because the rhythm was regular; again flutter with block was discovered; the quinidin was continued, and five days later, after he had taken 6.6 gm. more of quinidin, sinus rhythm appeared. Since then this patient has taken quinidin continuously, for a short while in doses of 5 grains twice a day, but during most of the time he has received a single daily dose of 5 grains. He still has sinus rhythm. The other case of especial interest was that of a young man whose record was placed at our disposal after his course of treatment had been carried out. His is the only case in the series which was not under our immediate care. This man was given, over a period of three weeks, 23 gm. of quinidin, without therapeutic result or untoward symptoms.

SIMULTANEOUS USE OF QUINIDIN AND DIGITALIS

The question as to the advisability of the simultaneous use of quinidin and digitalis has not yet been settled. By many, such practice is regarded as unjustifiable; by others, it is commended.

In six of our cases, digitalis was given throughout the course of the quinidin therapy; in two of these, sinus rhythm was restored; in not one did any serious symptoms appear, though in one instance we were unable to use as much quinidin as we wished because of the repeated occurrence of headache. In three of the cases, digitalis was given along with a second course of quinidin after the first course of quinidin had been stopped because of a rapid ventricular rate. In one of these cases sinus rhythm was resumed with a rate of 90; in a second, the fibrillation persisted, but the rate did not quicken, and in the third, the rapid rate again necessitated the discontinuance of the quinidin. Of thirteen patients in the series who received no digitalis prior to the use of the quinidin, only one resumed normal rhythm. We are of the opinion that no contraindication to the combined use of these drugs is proved, though, as has been stated, in the presence of digitalis toxemia, our observations have led us to believe that the administration of quinidin may be dangerous.

CONCLUSIONS

1. Of sixty-one cases in the series one resumed normal rhythm before treatment, leaving sixty cases of auricular fibrillation treated with quinidin; seventeen, or 28.3 per cent., resumed sinus rhythm. So far as we know, these results are the poorest that have been reported. Practically all of the patients in this group were "old cardiac" patients, many of whom had been treated several times for broken compensation. Our results lend some support to the prevalent theory that

quinidin is more likely to cause resumption of normal rhythm in those cases in which the fibrillation is of recent onset.

2. The rheumatic cases, though not more likely to return to sinus rhythm, did show a greater tendency to maintain the restored rhythm, and to be benefited, clinically, by the change.

3. The most striking feature in the successful use of quinidin is the subjective relief experienced by the patient; many of these patients immediately expressed their pleasure in no longer feeling the annoyance caused by the irregularity. We believe that this subjective relief offers the most certain indication for the use of quinidin, and that those patients, in particular, who are troubled by the irregularity should be given the benefit of quinidin therapy.

4. Though our series is small, we are of the opinion that the restoration of the normal rhythm is often of real value to the patient as an aid to the maintenance of compensation. Under proper conditions, quinidin offers enough hope of relief to warrant its continued use, though the treatment of auricular fibrillation had better not be undertaken outside a hospital until the routine of safe treatment is more carefully worked out.

5. We do not believe that patients with fibrillation of long duration must be denied the possible benefits of quinidin therapy, simply because the condition has existed for a long time.

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DIET IN THE TREATMENT OF BALANTIDIUM COLI INFECTION

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In the treatment of *Balantidium coli* infection, less attention has been given to diet than to other measures. However, the patients who were given a special diet have done so well that it has prompted us to report our results so that a wider usage of the diet will demonstrate its value.

For many years *Balantidium coli* has been considered as only a rare parasitic invader of mankind, but reports indicate that it is more common than is generally supposed. While the cases reported have been largely from the tropics, a number have been observed in the Southern states, and, what is important, cases have been noted in the Northern states as well. For this reason, *Balantidium coli* infection can no longer be considered a local or regional problem, but one which concerns the whole country.

Balantidium coli is a unicellular flagellate inhabiting the colon and capable of invading the layers of the intestinal wall. It is very actively motile, and when once observed under the microscope it is not difficult to recognize. The infection is transmitted through contaminated food and drinking water. Apparently close association with pigs seems to have an important etiologic bearing.

The parasite was first described by Malmsten [1] in 1857, who observed it in two cases of diarrhea. Since then about 175 cases have been reported in the literature, most of them occurring in foreign countries. The first case noted in this country was reported by Mitter [2] in Iowa in 1891. Since then about twenty-five other cases have been noted. In the Southern states, isolated cases have been reported by Bel and Couret,[3] Deadrick,[4] DeBuys,[5] Young and Walker,[6] and Nisbet,[7] and three cases each by Gray [8] and by the Rockefeller Sanitary Commission.[9] In the Northern states, single cases have been noted by Mallory,[10] Van Wart,[10] Jennings,[11] Sistrunk,[12] Smithies,[13] and Manlove,[14] and four cases were recently studied by Logan.[15] This would indicate a rather widespread distribution.

In the warm countries the infection is more acute, with a more rapid and often fatal course. In colder regions the chronic form is more frequently seen, often existing for years, with alternating periods of constipation and diarrhea. There is no doubt that many such cases are overlooked, first, because parasites are not suspected and therefore not looked for, and secondly, because of faulty technic in examination of the feces.

It has been shown by Strong and Musgrave,[16] Bel and Couret,[3] DeBuys,[5] and by Bowman [17] that *Balantidium coli* can no longer be considered a harmless accidental invader of the intestinal tract, as was thought by Döflein [18] and other early observers, but a parasite capable of producing serious effects, which in the late stages do not readily respond to treatment. Considerable attention has been given to a consideration of its morphology,[3] growth and transmission,[19] and to the pathologic alterations it produced in the intestinal tract.[17]

Until recently, therapeutic measures have consisted mainly in the use of drugs by mouth and of enemas to rid the intestine of the parasites. From the large number of different drugs advocated for this purpose it is apparent that no single one is especially efficient. Calomel, phenyl salicylate, ipecac, emetin and thymol have been tried by mouth with varying results, while local treatment by enemas of protargin mild (argyrol), salicylates, tannic acid, and quinin have given no better effects. Most of the drugs ordinarily employed against intestinal parasites are without effect on *Balantidium coli*. This is probably due to the fact that the parasites penetrate the intestinal wall and also because encysted forms develop, which are more resistant. However,

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18. Döflein, F.: Die Protozoen als Parasit und Krankheitserreger, Jena, 1901.

19. De Buys, L. R. (Footnote 5). Klein, E.: Paramecium Coli and Trichomonias in Sewage, Brit. M. J. **2**: 1852 (Dec. 26) 1896.

beneficial results have been reported with arsphenamin by Logan,[15] with ipecac by Barlow,[20] Steyrer[21] and Brenner,[22] with emetin by Axter-Haberfeld[23] and Cordes,[24] with thymol by Bassler,[25] and with benzyl benzoate by Haughwout and Domingo.[26] On the other hand, other investigators[27] have not been able to confirm these results. So far there is no known specific remedy.

Only a few writers mention diet in the management of their cases, and they have noted it only incidentally to their treatment with drugs. The diet in Steen's[28] case consisted of milk and gruel, while Nisbet in his case allowed a more liberal diet of milk, eggs, scraped beef, toast and cereals. Eastman[29] remarked that these cases do not handle starches and sweets well, but do better on broiled steaks and concentrated foods. Apparently there is no more uniformity in dietetic management than there is in the various drugs employed. With these few exceptions, the other observers have evidently considered the diet as only of secondary importance. As a matter of fact, we did not realize its importance ourselves until we had treated our first patient for some time along the lines suggested by other writers before placing him on a special diet. After observing how successfully this method was in this case, we tried it in our next cases with equally good results.

Our routine in these cases was very simple. The patient was given 2½ quarts (2.5 liters) of whole milk during the day. This was divided so that small portions were given at regular intervals. After several days the milk was supplemented by the addition of one or two soft eggs. In our cases, the action of the bowels became normal within a week's time. The only drug used was bismuth subnitrate in 15 grain (1 gm.) doses during the first day or two to relieve the cramps and to check the diarrhea. Later, when the bowels became sluggish, stewed fruits were given. This diet was continued until the feces were free from *Balantidium coli,* when it was gradually increased until the patient was taking a full diet.

Our cases responded very promptly with this plan. The routine was not difficult to follow and did not create any such discomfort as resulted when the various colonic irrigations and injections were employed. The patient was soon made comfortable and there was a rapid improvement in the general condition. This was probably due to the freedom from pain, with its consequent interference with rest and sleep, and to the relief from the exhaustion incident to the marked loss of fluids from the body. The distressing cramps and tenesmus cleared up in a few days, and the stools soon became more normal in character. The parasites disappeared from the stools in twenty days in the first case, and in eight days in the second case. Repeated examinations made later have shown no recurrence.

It is difficult to explain why the milk diet should be so beneficial in these cases. Apparently it produces a medium which is not favorable for the existence and growth of *Balantidium coli;* at the same time it furnishes fluid which the body needs badly, and it is nonirritating to the inflamed intestinal mucosa.

REPORT OF CASES

CASE 1.—W. B., a man, aged 59, a native of Arkansas, seen, June 29, 1920, complained of attacks of diarrhea which had been present at intervals since 1915. He had noted distress after eating, and for the preceding two months there had been a watery diarrhea. He had lost considerable weight and had become quite weak.

On examination, the patient appeared very anemic and emaciated. The physical findings were negative except for a marked general tenderness of the abdomen.

Laboratory examination of the urine disclosed a few granular casts but no albumin; the blood showed 50 per cent. hemoglobin, 1,900,000 red cells and 8,600 white cells; the differential count gave 67 polymorphonuclears, 4 large lymphocytes, 29 small lymphocytes and 2 normoblasts. The feces were watery and contained great numbers of *Balantidium coli.*

The patient was put to bed in the hospital and the following plan started: Five grains (0.3 gm.) each of phenyl salicylate and tannin albuminate were given by mouth. Twice a day the colon was cleansed out with saline solution, and 8 ounces (235 c.c.) of a 5 per cent. protargin mild solution was given as a retention enema. This had to be stopped at the end of four days on account of the irritation of the colon. For the next three days, sodium salicylate solution was employed, using 8 ounces of a 1:1,000 solution. This also proved irritating, and the bowels would no longer retain the solution. The feces were largely mucus and contained large numbers of the parasite.

The patient was then allowed to go home, and was advised to go on a soft diet. On his own initiative, he restricted himself to 2½ quarts of whole milk a day. By August 21, he was feeling much better. The diarrhea was less marked, and he felt stronger. The feces still contained *Balantidium coli,* but in fewer numbers. By August 30, the bowels had become quite sluggish, and stewed fruits were advised with relief. September 10, the feces were free from *Balantidium coli.* The patient looked much better. His color tone was improved, and he had gained in weight. The blood showed 75 per cent. hemoglobin, 3,500,000 red cells and 7,500 white cells. The differential count gave 69 polymorphonuclears, 5 large lymphocytes and 26 small lymphocytes. No normoblasts were noted. Later examinations of the feces have failed to reveal any recurrence of the parasites. The patient has continued to improve, and his health is better than it has been for years.

This case showed a marked anemia, which evidently was associated with *Balantidium coli* infection. Such an anemia was also noted in a case by Jennings.[11] Several years ago, Glaessner[30] found a hemolytic toxin in *Balantidium coli,* which probably plays a part in the production of the anemia. Recently Logan[15] reported four cases associated with an anemia of the pernicious type. Marked anemias have also been noted by Schwartz[31] in other intestinal parasites.

CASE 2.—Mrs. W. M., aged 61, a native of Arkansas, seen Nov. 1, 1920, complained of gastro-intestinal irritation which had developed after a visit in the country in May. She noted a marked watery diarrhea with considerable tenesmus. The diarrhea was periodic, and the present attack had been present for two weeks.

The patient was fairly well nourished. The physical findings were negative except for some slight abdominal tenderness.

20. Barlow, N.: Treatment of Honduranian Balantidiosis, South. M. J. **8**: 937 (Nov.) 1915.
21. Steyrer: Balantidium Coli, Deutsch. med. Wchnschr. **39**: 2320 (Nov. 20) 1913.
22. Brenner: Ueber Balantidien-Enteritis und ihre Behandlung, München. med. Wchnschr. **66**: 587 (May 30) 1919.
23. Axter-Haberfeld, R.: Ueber einen Fall von Emetinbehandlung bei Balantidiose, München. med. Wchnschr. **62**: 152 (Feb. 2) 1915.
24. Cordes, W.: Zur Therapie der Balantidienkolitis, München. med. Wchnschr. **68**: 484 (April) 1921.
25. Bassler, Anthony: Diseases of the Intestines and Lower Alimentary Tract, Philadelphia, F. A. Davis Company, 1920, p. 529.
26. Haughwout, F., and Domingo, E.: Protozoologic and Clinical Studies on the Treatment of Protozoal Dysentery with Benzyl Benzoate, II, Treatment of a Case of Acute Balantidiosis, Philippine J. Sc. **16**: 633 (June) 1920.
27. Dutcher, B. H.: The Failure of Emetine Hydrochloride but the Apparent Success of Salvarsan in a Case of Balantidiosis, Am. J. Trop. Dis. **2**: 663, 1914-1915.
28. Steen, P. H.: Balantiditis, Ugesk. f. Læger **83**: 662 (May 19) 1921.
29. Eastman, J. H., in discussion of the article by Nisbet (Footnote **7**).
30. Glaessner, K.: Balantidium Coli, Wien. klin. Wchnschr. **20**: 750 (June 13) 1907.
31. Schwartz, B.: Hemolysins from Parasitic Worms, Arch. Int. Med. **26**: 431 (Oct.) 1920.

Laboratory examination revealed the urine normal; the blood showed 80 per cent. hemoglobin, 4,300,000 red cells and 9,200 white cells. The differential count gave 71 polymorphonuclears, 5 large lymphocytes, 19 small lymphocytes and 5 eosinophils. The feces showed a considerable number of *Balantidium coli*.

The patient was sent to the hospital and placed on the milk diet, with the addition of the bismuth subnitrate during the first two days. The diarrhea checked up rapidly; in fact, the bowels became so sluggish by the eighth day that stewed fruits were given. By November 8, the feces were free of the parasites, and later examinations failed to show a recurrence.

The second case was not as advanced as the first and did not show such marked symptoms. However, we believe that the course of the infection was cut short by the use of the milk diet.

CASE 3.—W. B. D., a boy, aged 11, a native of Arkansas, seen, June 22, 1921, complained of recurrent attacks of sick stomach with nausea and headache. The bowels were constipated.

The patient appeared to be in good health. The physical findings were negative. Laboratory examination showed the urine to be normal; the blood showed 85 per cent. hemoglobin, 4,500,000 red cells, and 10,800 white cells. The differential count gave 50 polymorphonuclears, 44 small lymphocytes, 3 large lymphocytes and 3 eosinophils. The feces showed many *Balantidium coli* organisms.

The patient was placed on the milk diet and returned home. December 29, he had his next observation, and reported that the bowels were acting better and that the attacks of headache were less frequent. A feces examination detected no parasites.

CASE 4.—H. C. B., a youth, aged 18, a native of Arkansas, seen, Oct. 27, 1922, complained of nervous attacks and occasional periods of intestinal discomfort, which had been present during the preceding three months.

The patient was well nourished. Physical findings were negative. Laboratory examination showed the urine to be normal. The blood showed 4,800,000 red cells, 8,200 white cells and 90 per cent. hemoglobin. The differential count gave 55 polymorphonuclears, 30 small lymphocytes, 8 large lymphocytes and 7 eosinophils. The feces showed many *Balantidium coli* organisms.

The patient was placed on the milk diet and advised to take a mild laxative once a week. He returned home and was again seen, December 2, and stated that he felt better and had gained 10 pounds (4.5 kg.). There have been no nervous attacks since his last observation. A feces examination showed no parasites.

The last two cases show only a mild chronic infection and give more nervous symptoms than localized intestinal irritation. After a clearing up of the infection, there was improvement in the general health, with relief from the nervous trouble.

Although only four cases are presented here, we believe that the diet is a valuable agent in combating the infection. It is certainly much simpler and more easily employed than the various colonic irrigations and injections which have been used. It is worthy of a trial in these cases, which are probably more widespread than is generally supposed.

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Duration of Protective Power of Antityphoid Vaccination.—That the typhoid vaccination received in the Army had a distinct protective power even two or three years later, when the men had returned to civil life, was clearly shown recently in a typhoid epidemic of several hundred cases in Salem, Ohio. Out of 210 ex-service men in Salem, only three, or 1.4 per cent., contracted the disease, whereas out of the female population of the same age group 12.5 per cent. contracted it.—T. G. Hull, *Pub. Health Rep.* **36**:2315 (Sept. 23) 1921.

TIME REQUIRED FOR DISAPPEARANCE OF INTRADERMALLY INJECTED SALT SOLUTION

PRELIMINARY REPORT OF OBSERVATIONS, WITH SPECIAL REFERENCE TO CASES OF EDEMA *

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If 0.2 c.c. of an 0.8 per cent. aqueous solution of sodium chlorid is injected intracutaneously in a normal child, a circumscribed snow-white elevation, in which the pores are accentuated, is immediately produced at the point of injection. Although the extreme whiteness disappears in from one half to one minute, the elevation persists for a considerable time. In some instances there is an area of erythema about the raised area which usually disappears in a few minutes.

It occurred to us that a study of the time required for the disappearance of the elevation, which we assume to be largely the injected salt solution, might give an indication of the tissue's avidity for water. We tested this out in a number of normal and diseased persons, most experiments being carried out under the observation of two.

TECHNIC

Two-tenths cubic centimeter of an 0.8 per cent aqueous solution of sodium chlorid is injected intracutaneously under aseptic precautions. Duplicate injections are made about 2 cm. apart either in the forearm or in the leg, or in both. In the forearm the flexor surface is used, and in the leg, either the inner surface of the calf or the lateral side of the anterior surface of the leg. The needle is inserted sufficiently superficially so that the lumen is visible through the skin. The end-point of the disappearance of the elevation can best be determined by palpation unassisted by inspection, since color changes seen about the point of injection may cause confusion. It is necessary to disregard the very small traumatic elevation that is occasionally produced just where the needle enters the skin. This may persist after the large elevation, due to the injected salt solution, has disappeared.

Salt solution is injected rather than water for two reasons: (1) It is isotonic, and (2) the injection of distilled water is extremely painful.

TABLE 1.—*Control Cases*

Case	Age Yrs.	Age Mos.	Diagnosis	Average Disappearance Time in Minutes * Arm	Leg	Pitting
1	1	2	Fracture	56±	62±	None
2	2	...	Postoperative appendicitis	66+	65+	None
3	4	...	Preoperative knock-knee	60±	....	None
4	4	6	Preoperative circumcision	58	58±	None
5	6	9	Fracture	50	83±	None
6	8	...	Fracture	74+	72+	None
7	8	8	Fracture	74	94±	None
8	9	6	Fracture	68	108±	None
9	13	...	Head injury	70±	68+	None
10	Adult		Normal	80±	....	None
11	Adult		Normal	60+	....	None
12	Adult		Normal	70	....	None

* The plus sign indicates still palpable; plus-minus, still slightly palpable.

* From the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital.

In carrying out the experiments, it is noted that the duplicate elevations in the same part disappear practically simultaneously. Any marked deviation from this is readily accounted for by a difference in the depth of the two injections. Practice has enabled us almost completely to eliminate this difficulty. Although the duplicate elevations in the same part disappear almost simultaneously, frequently there is a difference in the disappearance time in the arm as compared with the leg in the same individual.

The group of cases in Table 1 is given as a basis for comparison with results found in the pathologic cases. These patients were apparently normal except for the condition noted under "diagnosis." Several normal adult cases are also included. It is seen that the raised area produced by the injected salt solution persisted at least fifty minutes in every case.

PATHOLOGIC CASES

Various pathologic conditions showed decided reduction of the disappearance time, as compared with control cases. This is especially true in children who have a demonstrable edema. In these cases the disappearance of the elevation is at times very rapid. Table 2 records examples of cases of edema.

Table 2 shows that the disappearance of the raised area produced by injection of the salt solution is decidedly more rapid in cases of edema than in the controls of Table 1. The disappearance time is roughly in inverse ratio to the degree of the edema at the area of injection. Attention is especially directed to the fact that in regions in which there is no edema that can be demonstrated by pitting, the disappearance is also more rapid than in the controls.

Table 3 records the results of tests made in Case 13 at intervals during a considerable period.

It is seen in Table 3 that, in a general way, the disappearance time decreases as the edema and the pathologic findings in the urine increase. At no time, even in the absence of pitting, did it come close to the time for the control group in Table 1. The gain and loss of body

TABLE 2.—*Cases of Edema*

			Arm			Leg			
				Average Disappearance Time			Average Disappearance Time		
Case	Age in Yrs.	Diagnosis	Pitting	Min.	Sec.	Pitting	Min.	Sec.	Urine
13	10	Nephritis	Slight	14	50	Slight	7	45	Albumin +++; casts; R. B. C.
14	8	Nephritis; endocarditis	None	38	..	Slight	10	..	Albumin +
15	10	Decompensated heart	None	1	8	Marked	..	35	Albumin +++; occas. R. B. C.; no casts
16	6	Endocarditis; anemia	None	30	..	Slight	17	..	
17	2½	Anemia; leukemia?	Very marked	..	20*	Extreme	..	3*	Albumin, trace
18	2½	Pyonephrosis; anemia	None	30	..	Slight	15	..	W. B. C. ++; albumin, trace

* Approximate: the disappearance was too rapid to time accurately.

weight, in conjunction with the degree of the pitting, are given as an evidence of increased and decreased water retention. From March 28 to April 13, the increase of weight was evidently due to normal tissue increase, since at this period the patient was doing better, and the edema, as determined by pitting, was decreasing.

COMMENTS

It is not our purpose in the present paper to discuss the physical or chemical factors which account for the difference in time required for disappearance of the elevations produced by the injected salt solution. We wish to call attention principally to the marked increase in rapidity of disappearance in cases of demonstrable edema, and also to the fact that in the same patients the disappearance time is considerably less than in the controls, even in the parts in which pitting is not present. From the later observation it would seem that

TABLE 3.—*Observations in Case 13*

	Arm			Leg				
		Average Disappearance Time			Average Disappearance Time			
Date, 1923	Pitting	Min.	Sec.	Pitting	Min.	Sec.	Urine	Weight of Patient in Pounds
2/21	None	5	55	Marked	3	5	R. B. C. ++++, Alb. ++, W. B. C. +, casts ++	..
2/22	....	..	..	Less marked	5	..	Alb. +++, casts ++, R. B. C. ++	..
2/23	None	8	..	Less marked	11	5	Alb. +++, casts ++, R. B. C. ++	2/24, 61
2/26	....	..	..	Marked	8	35	Alb. +++, casts ++, R. B. C. ++	..
2/27	None	4	30	Marked	7	..	.....	62
2/28	....	..	..	Marked	6	10	.....	63
3/ 2	None	8	20	Marked	3	55	Red	62½
3/ 6	....	..	..	Less marked	7	35	Red.; Alb., 14 gm. per liter	60
3/13	....	..	..	Definite	7	50	Much less blood	56
3/19	....	..	..	Slight	15	15	Alb., 0.75 gm. per liter 3/16	50¼
3/23	....	..	..	Slight	10	35	Albumin, trace	50
3/28	....	..	..	None	27	15	Albumin +	48
4/ 6*	....	..	..	Slight	26	45	Albumin +	50¼
4/13	....	..	..	None	24	45	Albumin, trace	50
4/24	Slight	14	50	Slight	7	45	Alb. +++, casts, R. B. C.	..
5/16	Slight	28	10	Slight	13	40	Albumin ++	58¼
5/24	None	37	..	Slight	34	..	Albumin +	57¾

* In this case, 0.1 c.c. injections were used previous to April 6.

this test may be of value in determining the so-called pre-edematous state of the tissues.

We plan to make a fuller report at a future date. We have also under consideration the testing out of solutions of different concentration and of different constitution, and the application of the test to cases showing dehydration.

The results so far obtained suggest that this test may be of value: first, in the detection of disturbed water balance in the tissue, and, secondly, as a means of following the progress of a case in which the presence of such a disturbance has been established.

THE KAHN PRECIPITATION TEST FOR SYPHILIS*

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The Kahn test was made on 1,000 patients in the Wassermann Laboratory of the Washington University School of Medicine. With the close cooperation between the laboratory and the clinic, we had most favorable conditions for an investigation of the test.

Our procedure was to select 1,000 cases, including clinically positive and negative cases, doubtful cases, and a large number of cases under long continued treatment—in short, the general assortment that comes to a large dispensary. On each of these one thousand serums, we made a Wassermann and a Kahn test, and compared the results with each other and with the clinical findings.

The routine Wassermann test in use in the laboratory employs 5 per cent. sheep cells and amboceptor and

* From the Department of Internal Medicine, Washington University Medical School.

complement in dilution according to daily titration. Before each day's test, amboceptor and complement are titrated, the last tube showing complete hemolysis being considered the unit tube, and two units being used in the test proper. The primary incubation is carried on in the water bath at 37 C. for one hour. The secondary incubation is for fifteen minutes, provided all serum, antigen and negative control tubes show complete hemolysis within that period. Experience has shown, on comparison with clinical findings, that this technic gives us the most reliable Wassermann results.

The question, then, was whether the Kahn test could compare favorably with our routine Wassermann test.

In the precipitation test, we followed exactly the method outlined by Kahn,[1] using 0.3 c.c. of patient's serum inactivated, and 0.05 c.c. of antigen-saline mixture. We used both the cholesterin and the plain alcoholic antigens, finding the alcoholic antigen valuable for much the same reasons that it is valuable in the Wassermann test. The accompanying tables show the results in the 1,000 cases.

TABLE 1.—*Comparison Between Wassermann and Kahn Tests in One Thousand Cases*

Wassermann ..... neg.	Kahn ..... neg.	681
Wassermann ..... pos.*	Kahn ..... pos.	223
Wassermann ..... pos.	Kahn ..... neg.	25
Wassermann ..... neg.	Kahn ..... pos.	71
	Total	1,000

* Any difference in degree of positiveness negligible.

Table 1 shows a discrepancy in the results in only ninety-six cases, or an agreement between the two tests of 90.4 per cent. Table 2 concerns the ninety-six cases in which the discrepancy occurred.

TABLE 2.—*Discrepancy in Results Occurring in Ninety-Six Cases*

Wassermann ....pos.	Diff. of 3+...5 cases	Def. pos. hist. 3 cases; No pos. hist... 1 case; Questionable ..1 case	
Kahn .....neg.	Diff. of less than 3+.....20 cases		25
Number showing definite positive history			9
Diagnoses of cases not showing positive history:			
Pregnancy			4
Tuberculosis			2
Malaria			1
Diagnosis doubtful			9
			16
Wassermann .....neg.	Diff. of 4+...3 cases	Def. pos. hist. 2 cases; No pos. hist.. 1 case	
Kahn .....pos.	Diff. of 3+..10 cases	Def. pos. hist. 10 cases	
	Diff. of less than 3+.....58 cases		71
Number showing definite positive history			49
Diagnoses of cases not showing definite positive history:			
Pregnancy			5
Tuberculosis			2
Arthritis			2
Epilepsy			1
Asthma			1
Diagnosis doubtful			11
			22

CONCLUSIONS

The results in the 1,000 cases show a very close correlation between the two tests, with the balance in favor of the Kahn, the Kahn test showing a greater sensitivity, especially in treated cases. The Kahn test has the further advantage in that anticomplementary serums give a normal reaction in the precipitation test. Attention, however, should be drawn to the fact that in the Kahn test it is necessary that all serums be absolutely clear. Any fat, for instance, in the serum makes a reading practically impossible, and even slight hemolysis of the serum makes reading difficult. The necessity for care in the mixing of antigens to prevent spontaneous precipitation in nonsyphilitic serums must not be overlooked. But, as the case stands, the outlook for the Kahn test seems most favorable, and with more work on the standardization of antigens, we may hope in the future for a test that will relieve the laboratory of the intricacies of the Wassermann reaction.

5338 Enright Avenue.

1. Kahn, R. L.: A Simple Quantitative Precipitation Reaction for Syphilis, Arch. Dermat. & Syph. **6**: 332 (Sept.) 1922.

THE ETIOLOGY OF ECLAMPSIA

HISTORICAL AND CRITICAL NOTES

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The recent important contribution of McQuarrie[1] on the toxemia of pregnancy suggested, as an explanation of this condition, the accidental transfusion of incompatible blood between mother and child as the result of a fortuitous opening in the placenta between the two circulations. Examining 180 women and their new-born infants, McQuarrie found that toxemia occurred sixteen and one-half times more frequently when the maternal and fetal bloods were incompatible than when they were in the same iso-agglutination group. More than 70 per cent. of the cases of toxemia (all forms included) occurred in the small group in which there was interagglutination between maternal and fetal blood.

The work was of particular interest to me, because in 1911 I worked on the same idea, and was about to publish a preliminary communication on it (my article having already been approved by Professor Gies and Dr. Mandelbaum, in whose laboratories I was working) when, on reviewing the literature, I came across a paper written in 1905, by Dienst,[2] which set forth the same theory and gave vastly more evidence to support it than I had. Dienst came to his work particularly well prepared, since, in 1902, he had published an extensive monograph on the pathogenesis of eclampsia.[3] In his work of 1905, Dienst injected methylene blue solution with very slight pressure into the umbilical artery or vein of the still attached placenta of 160 women at the end of childbirth. Thirty-two of these women (20 per cent.) showed considerable methylene blue in the urine, which Dienst interpreted as meaning a communication between the circulations of mother and child.

Dienst examined the blood of 118 of these mothers for agglutination or hemolysis when mixed with the blood of their own children. In twenty-four of these cases, the mother's serum agglutinated or laked the red cells of the child. Of these twenty-four, fifteen had perfect placentas (no blue in the urine), and not one of these showed any albuminuria or eclampsia. On the other hand, among this twenty-four with incom-

1. McQuarrie, Irvine: Bull. Johns Hopkins Hosp. **34**: 51 (Feb.) 1923.
2. Dienst, Arthur: Zentralbl. f. Gynäk. **29**: 353 (March 25) 1905.
3. Dienst, Arthur: Archiv. f. Gynäk. **65**: 368-464, 1902.

patible blood, there were nine who showed blue urine, and of these nine, seven had actual eclampsia and two had albuminuria.

In one necropsy on a woman who died of an eclamptic convulsion during labor, Dienst was able to inject methylene blue under low pressure into the umbilical artery of the still attached placenta, and after injection of only a few cubic centimeters, to see the blue solution flow freely out of the uterine and ovarian veins.

He says, "Eclampsia is nothing but a transfusion of incompatible blood of the child into the mother's circulation as a result of a communication between the two"; also, "The necropsy findings in animals transfused with foreign blood resemble those of eclampsia to a hair." He also pointed out that the same process might go on in the child as in the mother if the mother's foreign blood penetrated to the child. More than 50 per cent. of the children of eclamptic mothers die; and as Dienst himself had pointed out in his previous monograph, the lesions are the same as those of the mother, essentially, "universal thrombosis." Furthermore, Dienst demonstrated hemoglobinuria during the convulsive stage in patients with eclampsia.

He pointed out also that his theory explained the often lightning-like suddenness of the attack, the usual time of onset at the beginning of rhythmic contractions of the uterus, the relatively more frequent occurrence of eclampsia in cases of narrow pelvis and in primiparas, because of more powerful uterine contractions, as well as the greater frequency of albuminuria and eclampsia with twins. In the case of twins, the placenta is larger and there is opportunity for a lesion of the placenta after the birth of the first child.

Dienst tested the strength of the agglutinins and hemolysins present and found them to increase greatly in strength in the four to nine days after childbirth in those patients with eclampsia who recovered. He failed to do the same on normal women whose blood had antibodies for the red cells of their children. This, although Dienst does not directly say so, is rather strong evidence that blood was actually transfused from child to mother. He also pointed out that, if thrombi failed to form in the kidney, there might be no albuminuria in eclampsia (and this is known to occur).

A few weeks after Dienst's publication, Liepmann [4] published a violent attack on Dienst's theory. In view of what we know today, most of Liepmann's arguments about the "biologic monstrosity" of thinking that a child's blood ever could be foreign to its mother's appear rather absurd. It should be remembered that at that time the heredity of the iso-agglutinins and agglutinogens had not yet been described. Liepmann, however, pointed out certain facts which weakened the force of Dienst's methylene blue experiments, namely, that the (presumably) normal placenta is not entirely impervious to methylene blue, since Sicard and Mercier had shown that, if methylene blue is injected subcutaneously into mothers before parturition, it may appear in the child's urine.

To this article Dienst replied vigorously a few weeks later,[5] basing his reply partly on the pathologic findings by Schmorl, in eighty-three cases of eclampsia, of placenta cells in the lungs. Dienst also said that the liver of a rabbit, dead after numerous injections of human blood, showed lesions which could not be distinguished from those of eclampsia.

4. Liepmann: Zentralbl. f. Gynäk., 1905, No. 15, p. 481.
5. Dienst, Arthur: Zentralbl. f. Gynäk., 1905, No. 21, p. 651.

Except for this attack by Liepmann, Dienst's work seems to have attracted extraordinarily little attention, and presently to have been forgotten altogether by those who wrote on the subject. This was partly due to the fact that Dienst himself, in 1908, retracted his idea and substituted for it another.[6] The reasons for abandoning this idea were that he had found an eclamptic mother whose serum failed to agglutinate her child's red cells, and had found one placenta in a case of eclampsia (among a large number) which was completely intact and microscopically normal. As against his original theory, he also cited Hitschmann's famous case of eclampsia with a decidual mole of five months' standing, and Kroemer's similar case of a three months' decidual mole. His new theory was based on the findings of increased fibrinogen and fibrin ferment in the blood of the mother. What causes this increase he does not explain. He does not seem at any time to have thought of the possibility that the child's blood serum might agglutinate or lake its mother's red cells.

On account of finding Dienst's articles, I abandoned my publication of 1911, and determined to attempt to produce the lesions of eclampsia experimentally. This led to two publications [7] in 1915. While interesting lesions were found, they were chiefly in the kidneys rather than in the liver, and did not especially resemble the extensive thrombotic lesions of true eclampsia. On looking back at these experiments now, however, it is clear that not too much in the way of lesions should have been expected, because the extremely crude and laborious technic of direct artery to vein transfusion (this was before the invention of the citrate and of the syringe methods) made it impossible to do very frequent transfusions of small amounts of blood between incompatible animals of the same species. I have tried continuous mutual transfusion by parabiosis with anastomosis of the superficial jugular veins, but have found this experiment mechanically too difficult. Such experiments have been successfully carried out by Hotz,[8] but, unfortunately, without reference to blood incompatibilities.

The clinical picture of incompatible transfusion and the pathologic findings of intravascular agglutination and hemolysis resemble the toxemia of pregnancy only to a certain degree. It is evident that the conditions under which the lesions are produced in pregnancy are peculiar. Since the observations of Dienst and of McQuarrie have so conclusively proved that there is some connection between toxemia and the blood incompatibilities of mother and child, it is necessary to find an explanation of the differences found. It seems most probable that these are due to the fact that mother and child are continuously united and that, an opening once established, there is a more or less constant leakage of blood in one direction or the other. If any biologic difference exists at the beginning, it becomes steadily accentuated by the process of immunization. That such immunization is sure to occur is shown by the fundamental experiments of Ehrlich and Morgenroth; [9] as well as by numerous experiments of von Dungern and Hirschfeld,[10] Hadda and Rosenthal,[11] and by

6. Dienst, Arthur: Arch. f. Gynäk. **86**: 314, 1908.
7. Ottenberg, Kaliski and Friedmann: Experimental Hemolytic and Agglutinatic Transfusions, J. M. Res., 1915, p. 141. Ottenberg and Thalhimer: Studies in Experimental Transfusion, ibid. **33**: 213, 1915.
8. Hotz: Deutsch. Ztschr. f. Chir. **104**: 603, 1910.
9. Ehrlich and Morgenroth: Ueber Haemolysin, III Mittheilung, Berl. klin. Wchnschr., 1900, No. 21.
10. Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch. u. exper. Therap. **4**: 531, 1909-1910.
11. Hadda and Rosenthal: Ztschr. f. Immunitätsforsch. u. exper. Therap. **16**: 524, 1913.

my experiments.[7] That these experimental conclusions can safely be transferred to human beings follows from clinical experiences with blood transfusion of incompatible blood which show that these transfusions lead to great increase of already present antibodies or to the development of latent antibodies.[12]

Moreover, the observations of Davis,[13] of Masson,[14] and of Shawan,[15] that skin grafts "take" in individuals of the same blood group as the skin donor, but fail to take when the blood serum of the patient is agglutinative to the red cells of the skin donor, indicate clearly that the group differences apply not only to red cells but also to other body cells. There has as yet been no demonstration of any effect of iso-antibodies on visceral tissues, but there seems every likelihood that if iso-antibodies are injurious to red cells and to skin cells, they must also, like hetero-antibodies, have effects on other body cells. Some of the organ damage in pregnancy toxemia may be due to this direct effect, on organ cells, of the increased antibody content which occurs as the result of mutual immunization.

One other point seems worth considering, namely, the reason for the preponderant localization of the hyaline thrombi, with their resultant parenchymatous degeneration, in the liver. Probably several factors are involved. Pearce,[16] in discussing the liver necroses produced by hemagglutinative serum, suggests that the tendency of the hyaline thrombi to form especially in the liver is due to the slowness of the portal circulation. Of great importance is probably the mechanism of the so-called "specific endothelial opsonins" of Manwaring and Fritschen.[17] These authors showed that if the liver of an immunized animal was perfused with an emulsion of the specific bacteria to which the animal had been immunized, the endothelial cells of the liver would take up enormously larger numbers of bacteria than were taken up by other tissues of the body of an immune animal or by the liver of a nonimmune animal. There is little reason to doubt that such a mechanism as this applies to red cells as well as to bacteria. The liver, with its elaborate structure of phagocytic endothelial cells (Kupffer's cells), bears the chief burden, in all hemolytic processes, of metabolizing and excreting the products of hemolysis.

In spite of Dienst's abandonment of his original theory, I have always believed it to be correct, and to offer the most plausible explanation of eclampsia. It is perhaps fortunate that McQuarrie, whose recent observations do so much to support this theory, was not aware of the previous work, since it might have discouraged him, as it did me. Dienst's objections, however, do not now seem very strong. One intact placenta is not conclusive; a small opening might easily have healed over and the symptoms been produced by blood cells which had previously passed through it, but which only slowly consolidated into hyaline thrombi. A similar explanation, of course, is necessary in the relatively rare cases of eclampsia occurring after labor. It must be remembered, further, that most of the toxic symptoms are due to organ degeneration, which is only a late result of the thrombus formation. With regard to the cases of placental mole, it is not astonishing, since this tumor is known to invade the blood stream, that in rare instances thrombi should form in distant organs and simulate the lesions or symptoms of eclampsia. At any rate, these cases deserve careful reexamination. The occasional failure to find antibodies in the mother's serum for the child's cells is also not conclusive, since either (1) the antibodies may have been in the child's serum, or (2) the antibodies present may have been absorbed by the excess of red cells—an occurrence which I [18] demonstrated in an incompatible tranfusion in 1911.

I wish to offer several suggestions which I have not the facilities for investigating myself. It seems within the range of possibility that, in the presence of any of the warning signs of toxemia, a direct examination of the mother's blood by a suitable technic might reveal the presence of microscopic clumps of agglutinated red cells, or might reveal phagocytosis of red cells (first shown by Hopkins [19] to occur in incompatible transfusions).

Finally, it seems possible that several other unexplained diseases, particularly the jaundice of the newborn, and perhaps even certain cases of hemorrhagic disease of the new-born, may be due to the same cause, accidental placental transfusion of incompatible blood. (Incoagulable blood with intestinal hemorrhage resulted in one of my dog experiments.)

15 West Eighty-Ninth Street.

12. Astrowe, P. S.: Hemolysis Following Transfusion, J. A. M. A. **79**: 1511 (Oct. 28) 1922. Thalhimer, William: Hemoglobinuria After a Second Transfusion with the Same Donor, ibid. **76**: 1921 (May 14) 1921.
13. Davis, J. S.: Ann. Surg. **66**: 88 (July) 1917.
14. Masson, J. C.: Skin Grafting, J. A. M. A. **70**: 1581 (June 1) 1918.
15. Shawan, H. K.: Am. J. M. Sc. **157**: 503 (April) 1919.
16. Pearce, R. M.: J. M. Res. **7**: 329, 1904.
17. Manwaring, W. H., and Fritschen, W.: Immunology **8**: 83 (March) 1923.
18. Ottenberg, Reuben: Transfusion and the Question of Intravascular Agglutination, J. Exper. Med. **13**: 425, 1911.
19. Hopkins, J. G.: Phagocytosis of Red Blood Cells After Transfusion, Arch. Int. Med. **6**: 270 (Sept.) 1910.

THE INCREASED INCIDENCE OF ORGANIZING PNEUMONIA

PRELIMINARY COMMUNICATION

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AND
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The condition known as organizing pneumonia is not commonly encountered at necropsy, and is almost never recognized in the living patient. It is characterized by the transformation of intra-alveolar exudate into connective tissue. Buhl and Delafield maintained that it represents an independent inflammatory disease of the lungs; Charcot, Coupland and Kidd that it is a phase in the evolution of lobar pneumonia. It is of greater clinical importance than is generally accorded it, partly, we believe, because it provides an anatomic basis for the otherwise vague state known as "unresolved pneumonia," and for at least some of those cases of pulmonary fibrosis which do not appear to be tuberculous and which are now frequently ascribed to syphilis, in spite of the fact that syphilis of the lungs is so rare as to constitute a pathologic curiosity.

In a review of 125 cases of lobar pneumonia seen at necropsy in the pathologic laboratories at Bellevue Hospital during an unselected interval of two and one-half years, organizing pneumonia occurred four times—an incidence of 3.2 per cent. Over a period of four months ending in May, 1923, there were seven examples of organizing pneumonia among thirty-four cases of

lobar pneumonia—an incidence of 20.6 per cent. It is apparent, therefore, that in the latter part of last winter the condition became distinctly more frequent than it had been in previous years. In a series of forty cases of lobar pneumonia, McCrae found symptoms of delayed resolution in between 3 and 4 per cent. Therefore, the incidence of unresolved pneumonia as encountered clinically, and of organizing pneumonia as met at necropsy, in ordinary circumstances, is practically identical. Furthermore, in view of the fact that the clinical signs of unresolved pneumonia are not to be distinguished from those of organizing pneumonia, the assumption appears to us to be justified that they represent one and the same process.

The symptomatology of organizing pneumonia is that of lobar pneumonia with delayed resolution. It commences with chills, followed by rapid rise of temperature, which in most cases rarely exceeds 104, and in some cases may not pass 100. There is cough; the sputum is sometimes rusty, occasionally mucopurulent, at other times bloody. Frequently there is a stitch in the side, and physical signs of fibrinous pleuritis. The latter may be succeeded by those of effusion. Examination reveals signs of consolidation of the lung as customarily encountered in lobar pneumonia. Crisis may occur at the expected moment, or lysis, or neither may take place. In any event, the physical signs of consolidation persist or become modified to suit changing conditions in the lung or pleura, depending on the extent and distribution of the connective tissue. The temperature often pursues an intermittent course. The duration of the process varies from six or eight days to two months, one of Delafield's cases lasting for sixty-one days, another, sixty-two. Of the seven fatal cases encountered during the past winter at Bellevue Hospital, one was of fourteen days' duration, two of fifteen days', two of seventeen days', and in two no history was obtained.

Anatomically, the process may involve one or more lobes diffusely. As a rule, however, the distribution is patchy, the individual patches varying in size from one to several centimeters. The earliest stages are marked by congestion of the lung; the cut surface is of velvety smoothness, and scattered over it are numerous minute whitish or grayish white specks. The involved area is somewhat leathery or rubbery in consistency. At this stage, histologic examination shows congestion of blood vessels; in the alveoli are plugs of smooth, pinkish staining material, representing hyalinized fibrin. In some instances, the fibrinous plugs extend from one alveolus into the next, thus assuming an hour-glass shape. Still other alveoli are consolidated by polymorphonuclear leukocytes, fibrin being conspicuous by its absence, and the lumina of the smaller bronchioles are similarly occupied. The second stage is characterized by diffuse or patchy consolidation, the consolidated areas being grayish or grayish red, and firm. Histologic examination shows variable numbers of fibroblasts growing into and replacing the fibrinous plugs in the alveoli, the fibroblasts being arranged in parallel formation or in semilunar fashion. The third stage is marked by replacement of the fibrinous plugs by rounded or oval collections of fibrillar connective tissue. In occasional cases, the lung presents solitary or multiple cavities filled with pus. The pleura may be free or greatly thickened, sometimes producing flattening or retraction of the chest wall. In one of our cases, practically the whole of the lower lobe of the right lung was covered by pleura thickened by fibrous tissue to the extent of about 1.5 cm., and the lung presented a half dozen or more small abscess cavities.

It is evident, therefore, that the condition is anatomically and histologically distinct from the ordinary chronic interstitial pneumonia of syphilis, tuberculosis and the like, since the connective tissue replacement is almost exclusively confined to the intra-alveolar spaces. The weight of evidence, both clinical and otherwise, appears to us to favor the view that the condition is not an independent disease entity, but is to be expected in a certain proportion of all cases of lobar pneumonia, and that its existence should be suspected whenever the physical signs of consolidation persist beyond the usual time.

In view of the noticeable increase in the incidence of the condition as encountered at Bellevue Hospital last winter, it is reasonable to expect, we think, that next winter will probably reveal cases in excess of customary experience. The Bellevue Hospital cases are now being made the subject of detailed investigation, the results of which will be published later.

Clinical Notes, Suggestions, and New Instruments

A MULTIPLE ELECTRICAL STETHOSCOPE FOR TEACHING PURPOSES

PRELIMINARY NOTE

RICHARD C. CABOT, M.D., BOSTON

For many years I have tried to find some device whereby both instructor and student might hear exactly the same chest sound at the same time. I have used stethoscopes with a large bell and several pairs of ear-pieces, but with these the sounds are much weakened, and the number of students that may use them is limited to ten or less.

In 1904, I tried to design a mechanism whereby, with the aid of levers tapping on drums, and of organ bellows connected with a megaphone, the sounds of the heart and lungs might be imitated. In 1906, I demonstrated such a device at the time of the American Medical Association session in Boston.

In 1911, and in later years, reports were current that heart sounds could be passed through a telephone. I was fortunate enough to enlist the interest of an expert in telephone work, who adapted and brought to the Massachusetts General Hospital a machine with which we were able to transmit the normal heart sounds through wires of considerable length. But we were never able to exclude adventitious sounds or to hear the fainter cardiac murmurs and breath sounds. We dropped the attempt, and after the war I reverted to devices for imitating the chest sounds artificially—but without much success.

During the first two weeks in June, 1923, in a course in physical diagnosis given at the Massachusetts General Hospital, under the Harvard Courses for Graduates, I have seen my aim accomplished. As the result of some three years of experimentation, an electrical apparatus has been perfected whereby the heart and lung sounds can be perfectly reproduced and distributed—certainly to seventy-five students simultaneously, and presumably to a much larger number. The device is based (I am told) "on the amplification of variations in an electrical current by the three element vacuum tubes which have become familiar in radio receiving. Three stages of amplification are used, with a delicate electromagnetic transmitter and an individual receiver for each listener." This instrument was designed and very generously lent for experimental purposes by the New York engineering department of the Western Electric Company.

After an exhaustive test on about 250 patients with various forms of heart and lung lesions, I believe that this machine is equal in every way to the usual form of stethoscope. Indeed,

it is possible to adjust it so that the sounds are distinctly louder than those heard either with the Bowles or with a bell-shaped chest piece, an obvious advantage in teaching the beginner and one which, with further work, may lead to earlier or more accurate diagnoses. The quality of the sounds and murmurs has in practically all cases been indistinguishable from that heard with the ordinary stethoscope alone. The "frying" noises due to the amplifying tubes, which are at times so prominent in an imperfectly designed radio set, have been reduced to an almost inaudible minimum, and do not interfere with the normal or pathologic chest sounds.

Perhaps the most severe tests of a device for auscultation may be found in the faint, low-pitched, mid-diastolic murmur of mitral stenosis, and in the shower of fine inspiratory râles following cough in incipient pulmonary tuberculosis. These were clearly heard by means of the electrical stethoscope in all cases in which they were heard with the ordinary stethoscope. All the more familiar heart murmurs, bronchial, bronchovesicular and cog-wheel breathing, the increased transmission of spoken and whispered voice over consolidated areas, and pleural rubs as well as the normal heart and lung sounds, were correctly transmitted.

It was also found possible to take the amplifier to the hospital wards and transmit the chest sounds over a cable about 600 feet in length down to the instruction amphitheater. In this way, the chest sounds of pneumonia patients, decompensated cardiac patients, and others too ill to be moved were made available for large classes as they have never been before, to my knowledge.

The advantages of such an apparatus for teaching purposes are very great. Chief among these is the simultaneous hearing of the identical sound by instructor and students. Immediate comment is possible, followed by the student's immediate attention to the feature commented on. Another advantage is the economy of time and strength for both patient and teacher. By methods previously used, it was difficult to give satisfactory instruction in classes of more than six or eight. This device has been very successful for seventy-five, and there is no electrical reason why three or four times that number should not be taught in one class.

It is, of course, impossible to give in print any proof of the accuracy with which the sounds are reproduced. Perhaps the best evidence is the fact that this particular class in physical diagnosis, composed of seventy-five graduate physicians, voted, after trying the instrument, to spend their time exclusively in the use of the electrical apparatus, rather than to attempt to examine the patients individually with their own stethoscopes.

I hope that in the immediate future the details of the apparatus may be published, and that arrangements may be made for its use in medical teaching at other medical schools and hospitals.

METHYLENE BLUE AS A STAIN FOR ULCERS AND ABRASIONS OF THE CORNEA *

A. G. FORT, M.D., ATLANTA, GA., AND WILLIAM JEROME KNAUER, M.D., JACKSONVILLE, FLA.

Methylene blue will stain an ulcer or abrasion of the cornea in a solution as low as 0.4 per cent., and this is an ideal solution to use. Its staining qualities are practically instantaneous, and require no irrigations to produce its staining effect. It is easily seen. It is nonirritating in 0.4 per cent. solution if made up in physiologic sodium chlorid solution. It is easily procured and easily made up. It is an antiseptic. A one ounce bottle of a 0.4 per cent. solution, including bottle, cork, label and medicine dropper, costs less than 5 cents.

* From the ophthalmologic clinic, Grady Hospital (col.) Atlanta, Ga.

Five Diseases Cause Half of Deaths.—According to the state registrar of vital statistics, five diseases are responsible for about half the deaths in Ohio each year. In 1922, heart disease caused 9,656; cerebral hemorrhage, 6,708; pneumonia, 5,968; cancer, 5,552, and tuberculosis, 5,130, the last one being the only one showing a decrease. Although the total, 68,019, was somewhat larger than the previous year, the rate remained the same, 11.3 per thousand.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

POLLEN PROTEIN ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 241).

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Prepared by the method given for Corn Pollen Allergen-Squibb (New and Nonofficial Remedies, 1923, page 241).

ANIMAL EPIDERMAL EXTRACT ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 241).

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Prepared by the method given for Burro Dander Allergen-Squibb (New and Nonofficial Remedies, 1923, page 242).

FOOD ALLERGENS-SQUIBB (See New and Nonofficial Remedies, 1923, p. 242).

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Products marked * are prepared by the method given for Apple Allergen-Squibb (New and Nonofficial Remedies, 1923, page 245).

Products marked † are prepared by the method given for Beef Allergen-Squibb (New and Nonofficial Remedies, 1923, page 245).

Products marked ‡ are prepared by the method given for Almond Allergen-Squibb (New and Nonofficial Remedies, 1923, page 244).

§ Vanilla Allergen-Squibb is made by the following method: The residue obtained by evaporating an 80 per cent. alcoholic extract of vanilla bean, is re-extracted with a dilute alkaline 10 per cent. salt solution, filtered, the filtrate dialyzed free from salt and the dialyzate precipitated with acetone and the precipitate dried with acetone.

POLLEN EXTRACTS-ARLCO (See New and Nonofficial Remedies, 1923, p. 237).

Pollen Extracts-Arlco are marketed in sets of five vials representing graduated concentrations, namely, 1:10,000, 1:5,000, 1:1,000, 1:500 and 1:100, respectively; also in concentrated solution in capillary tubes for diagnostic tests, each tube containing extract sufficient for one skin test. For hospital use, the diagnostic solution is supplied in 1, 2 and 3 cubic centimeter containers.

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Arizona Ash Pollen Extract-Arlco; Arizona Cottonwood Pollen Extract-Arlco; Arizona Walnut Pollen Extract-Arlco; Bermuda Grass Pollen Extract-Arlco; Burr Ragweed Pollen Extract-Arlco; Burroweed Pollen Extract-Arlco; California Mugwort Pollen Extract-Arlco; Carelessweed Pollen Extract-Arlco; Carpet Sage Pollen Extract-Arlco; Greasewood Pollen Extract-Arlco; Hill Sage Pollen Extract-Arlco; Johnson Grass Pollen Extract-Arlco; Mexican Tea Pollen Extract-Arlco; Mountain Cedar Pollen Extract-Arlco; Orach Pollen Extract-Arlco; Pigweed Pollen Extract-Arlco; Prairie Ragweed Pollen Extract-Arlco; Russian Thistle Pollen Extract-Arlco; Sage Brush Pollen Extract-Arlco; Sea Blite Pollen Extract-Arlco; Shad Scale Pollen Extract-Arlco; Western Ragweed Pollen Extract-Arlco; Wild Sunflower Pollen Extract-Arlco.

Prepared by the method given for Pollen Extracts-Arlco (New and Nonofficial Remedies, 1923, page 238).

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SATURDAY, JULY 28, 1923

SMALLPOX IN GREAT BRITAIN

Smallpox is an eternally vigilant teacher which may be counted on to emphasize the lesson of preventive medicine; this by serious example whenever people become careless and fail to avail themselves of proper vaccination. As related by our London correspondent in this issue, British authorities are becoming exceedingly anxious over the smallpox situation. The Ministry of Health has issued an official statement to the public placing part of the blame for the severity of the epidemic at Gloucester on the local health officer, who refused to admit the presence of smallpox in that city until too late to check the outbreak in its incipience. Even when the Ministry of Health sent a special investigator, the local officer refused to accept the diagnosis of smallpox. Finally a still higher officer was sent, a house to house canvass was made, and the existence of epidemic conditions was established beyond dispute. A special hospital was then set up and special vaccinating stations established, and the Ministry of Health reports that the situation is fairly well in hand, though there is urgent need of vaccination of the population.

Reading between the lines in this account of the outbreak in Gloucester, where the cases reported for four weeks in June were 27, 51, 78 and 90, respectively, one can realize what difficulties the health officer must have had in controlling the disease in that community. Gloucester has long been a hot-bed of antivaccinationists, and apparently learned nothing from its epidemic of some fifteen years ago. It is, moreover, the home of the notorious antivaccinator and antivivisector Hadwen. The incessant activity of this fanatical and misguided agitator and his followers made difficult the enlightenment of the public and the establishment of proper sanitary precautions. In fact, Hadwen went so far as to insert advertisements in the press, denying that smallpox was present in the community.

As might have been expected, the rapid growth of a focus of smallpox, such as occurred in Gloucester, was reflected throughout the rest of England. For the country as a whole, the figures for the four weeks of June were 67, 77, 140 and 131, and practically every sanitary district was affected to some extent. As is pointed out by the Ministry of Health in its bulletin, the vaccination of infants has decreased in Great Britain from a percentage of 70.9 of births in 1907 to 38.3 in 1921. In view of the rarity of revaccination among the adult civil population, the Ministry of Health "regards the situation with concern and holds the view that there is distinct risk of an outbreak of serious character." The ministry concludes its statement by again urging revaccination on the entire public; it points out that vaccination can be obtained free of cost by application to the public vaccinator in each area, and that there is plenty of fresh vaccine lymph available for all needs.

In this connection it is also interesting that Dr. W. W. Keen of Philadelphia, one of the strongest supporters of rational methods of preventing smallpox and a strong opponent of the efforts of Hadwen against animal experimentation, should have been in England at this particular time, attending the International Congress of Surgeons. With his usual untiring efforts in behalf of scientific medicine, Dr. Keen contributed to the London *Times* a strong statement on American experiences with vaccination, and contradicted flatly the assertion of Hadwen that vaccination is "pouring filth into the blood." In the same issue in which the letter of Dr. Keen was published, the *Times* welcomes the announcement of the Ministry of Health editorially and calls its readers' attention particularly to the letter of Dr. Keen: "We hope," says the *Times,* "that the Ministry of Health will not cease to preach the orthodox doctrine, and that the medical profession, whose members, it must be admitted, have had in recent years very little to encourage them voluntarily to become in this respect sanitary evangelists, will not cease from putting the remedy, and the meaning of the disease, before the populations to which they minister. The argument in favour of general vaccination is manifold. In the first place, vaccination prevents the spread of the disease. Secondly, it prevents the consequences of the disease; which are death and deformity, the throwing, very likely, of young children, whose parents die of the disease, upon public charity, and the expenditure of money on the measures of disinfection and isolation which have to be taken when an outbreak or even a single case occurs. It is an antisocial act to refuse to be vaccinated, and for the obstinacy of the recalcitrant not only the recalcitrant, but also the community has to pay. We see no reason, therefore, why vaccination should not be made, as it once was, a matter for rigorous compulsion. The community has a right to protect its pockets and its peace of mind as well as the bodies of those who compose it. We are glad to see from its statement that the Ministry of Health has arranged to provide local officers of health with the best medical

assistance at its command for the diagnosis of the disease. The organization seems to be excellent, but the real way to suppress smallpox is not to diagnose and to treat it, but to stamp it out and prevent its recurrence by the creation of a healthy and conscientious public opinion in favour of vaccination. In the last resort, unless the health conscience of the nation is clean its continued immunity from a preventible scourge will remain, as it is at present, uncertain."

VITAMIN STORAGE IN THE BODY

There is at present a fairly general acceptance of the view that the vitamins cannot be synthesized by animal tissues; consequently we are dependent on extraneous sources of these food factors. While it is commonly asserted that the vitamins are indispensable essentials for nutrition, it must be frankly admitted that there is considerable uncertainty involved in the evidence at present available. One species of animal will apparently thrive on a food mixture which leads promptly to deficiency symptoms in another. For example, the rat, which has been employed so widely in recent years for experimentation in relation to dietary essentials, may grow well on diets which speedily lead to scurvy in the guinea-pig, even under comparable hygienic and environmental conditions. Scurvy has not been elicited by experimental means in either the dog or the rat. Man and the monkey, like the guinea-pig, are peculiarly susceptible to the lack of the antiscorbutic vitamin. In respect to rickets, man, the rat and the dog all seem to be affected by the lack of the antirachitic "principle" contained in cod liver oil as well as many natural foods. On the other hand, human beings do not frequently, if ever, show the ophthalmias that are so characteristic of a regimen deficient in vitamin A, in the case of various other species.

How are such seemingly conflicting facts to be reconciled with any hypothesis of the indispensability of the vitamins for well-being? The foremost suggestion is that not all of the now recognized types are essential to all species of animal organisms. So far as has been ascertained, vitamin B seems to be required in some measure by all; but there are indications of very unlike needs not only of vitamin C—the antiscorbutic factor—but also of vitamin A.[1] This is perhaps no more surprising than the marked differences in the susceptibility of various species to certain infections, and their variable equipment of protective "immune bodies." The possibility that some species are able to synthesize vitamins to a degree impossible for others has little to commend it; in fact, it seems contrary to all biologic probabilities.

New light has been thrown on the questions at issue by the demonstration that the fat-soluble vitamins, at least, can be stored in some measure in the body. Consequently, individuals may continue for some time to thrive on a diet admittedly poor in these food factors. According to the studies of Steenbock, Sell and Nelson[2] of the University of Wisconsin, the liver appears to be an important center of this storage, varying in its content of the fat-soluble vitamin with the ration fed. An organism may thus become so enriched through an earlier dietary regimen that it can continue in health for some time on the "accumulated surplus." The Wisconsin biochemists, applying their new observations to human physiology, point out that clinicians have frequently commented on the fact that few, if any, authentic cases of ophthalmia due to vitamin deficiencies have been reported for man. Evidence has even been offered in THE JOURNAL[3] showing the lack of symptoms in a number of children receiving a diet of skimmed milk for months. Here, we are now reminded, undoubtedly two factors were operative: in the first place, skimmed milk is not entirely devoid of fat-soluble vitamins; and, in the second place, considerable amounts may have been drawn from stored reserves. These findings afford another illustration of how proper living helps to fortify us against exigencies that may come without anticipation or defense. Like our "infectious past," our "nutritive past" may mean much for future welfare.

FACTORS IN THE REGULATION OF RENAL ACTIVITY

One of the inevitable physiologic necessities of everyday life is the elimination of the waste products of metabolism. The function of the lungs in the removal of the gaseous component, carbon dioxid and water, appears to be a relatively simple physicochemical process. The excretion of the nitrogenous metabolites, notably the end-product urea, through organs highly specialized for this purpose, has long appeared to be more complicated in character. The average diet of the human adult includes approximately 100 gm. of proteins which ultimately give rise to 30 gm. or more of urea to be disposed of by the kidneys in each twenty-four hours. What are the conditions that determine its elimination? The answer to this question furnishes a very important part to one of the most significant chapters in physiology. It also affords the basis for deciding wherein some of the pathologic manifestations of the renal structures consist. Failure to eliminate urea in a normal manner is inevitably a menace to the bodily welfare; a measure of the defect in function may be important from both a diagnostic and a prognostic standpoint. Even moderate delay in the excretion of urea may be of unfavorable portent.

1. Emmett, A. D., and Peacock, G.: Does the Chick Require the Fat-Soluble Vitamins? J. Biol. Chem. **56**: 679, 1923.

2. Steenbock, H.; Sell, M. T., and Nelson, E. M.: Fat-Soluble Vitamine, XI, Storage of the Fat-Soluble Vitamine, J. Biol. Chem. **56**: 327, 1923.

3. Hess, A. F., and Unger, L. J.: The Clinical Rôle of the Fat-Soluble Vitamin: Its Relation to Rickets, J. A. M. A. **74**: 217 (Jan. 24) 1920.

For some time it has been clearly demonstrated that one determining factor in the rate of urea elimination is the concentration of this nitrogenous waste product in the blood. As the latter rises, the output in the urine always increases if the kidneys are intact. One would also expect that the amount and the quality of the urea-secreting tissue of the kidneys play some determining part. That this is indeed the case has lately been demonstrated in the department of medicine at the Stanford University Medical School, by Taylor, Drury and Addis,[1] working with the aid of the Committee on Scientific Research of the American Medical Association. They conclude that the rate of urea excretion, though influenced within certain limits by a great variety of factors, is primarily controlled only by the concentration of urea in the blood and the size of the kidneys, so that, under certain conditions, when the effect of variation in blood urea concentration is excluded, the rate of urea excretion varies in direct proportion to the weight of renal tissue. Under suitable conditions, the rate of urea excretion continues to increase with every increase in the concentration of urea in the blood until general toxic symptoms develop, so that the ratio between the rate of urea excretion and the blood urea concentration remains approximately constant at all practicable levels of blood urea concentration. The order of magnitude of this ratio, however, is regulated directly by the size of the kidneys. In applying these new facts to the individual, the San Francisco clinicians have observed that body surface area shows a more constant relation to the kidney weight than does the body weight. Kidney size, therefore, can be most advantageously estimated from the body surface area, a measurement made familiar in recent years in connection with the study of basal metabolism.

1. Taylor, F. B.; Drury, D. R., and Addis, Thomas: The Regulation of Renal Activity, VIII, The Relation Between the Rate of Urea Excretion and the Size of the Kidneys, Am. J. Physiol. **65**: 55 (June) 1923.

AUTOMATIC AND REFLEX FACTORS IN THE MAINTENANCE OF BLOOD PRESSURE

The automatic character of a number of the bodily functions is often pointed out as a strikingly unique feature of the human mechanism. Foremost in this respect are the respiratory movements and the beating of the heart. Given a suitable nutrient medium well supplied with oxygen, the heart can continue its rhythmic contractions with regularity even when all connection with the rest of the organism has been severed. The respiratory center also can act automatically under conditions which preclude the effect of afferent impulses to stimulate it. Under such conditions, the cells in the medulla that control the act of respiration seem to be wholly dependent on chemical stimulation, particularly the carbon dioxid of the blood, for their activity. Many other functions of the organism, on the other hand, are responsive to impulses from without; that is, they exhibit what is called a reflex function. This is true of most of the movements of the skeletal muscles; they react in response to a reflex stimulus.

Blood pressure is dependent on the activity of the heart and the condition of the blood vessels. Is its maintenance, so important to physiologic well-being, a reflex or an automatic function? This question has recently been asked by Tulgan [1] of the Department of Physiology at Columbia University College of Physicians and Surgeons. Pike and Coombs [2] of the same institution have expressed the conclusion, with respect to the nervous mechanism of respiration, that while it is undoubtedly true that the respiratory center may act automatically under certain conditions, its normal activity is not wholly automatic but is partly reflex. That is, if afferent impulses from certain sensory fields are prevented from reaching the central cells of the medulla (as can be done experimentally by sectioning the vagi and the dorsal roots of the spinal nerves) respiration does not cease but continues in a modified form.

Essentially the same statement, we are now assured by the recent investigations of Tulgan, can be made in regard to the central cardiovascular mechanism. If all the cardiac nerves are severed, the blood pressure does not drop to zero, but is maintained at a certain level which is not the same as that observed when these nerves are intact. Despite this apparent automatism, however, reflex impulses coming through the nervous system play an important part in the proper regulation of the cardiovascular system. Its responses seem to be guided, in fact, by two antagonistic mechanisms, a cardio-inhibitory nervous mechanism and one of a cardio-accelerator type, both of which, through the algebraic summation of their effects, act in the interests of the organism under ordinary conditions. The first mechanism, in Tulgan's opinion, is concerned with preventing the heart from overwork, and in giving the heart musculature a sufficient period of rest for its metabolic repair. The second mechanism is intimately concerned with the maintenance of a certain level of blood pressure adequate for bodily welfare. Under ordinary conditions of rest, an "automatically maintained" blood pressure may suffice without discomfort; but whenever exertion is called for, the advantages of the influences that are exerted through reflex channels on the blood pressure sustaining mechanism become apparent.

The human organism cannot be regarded merely as a combination of simple automatic devices. It is peculiarly sensitive to modifying influences of both chemical and nervous character.

1. Tulgan, J.: A Study of the Relation of Afferent Impulses to the Activity of the Central Cardiovascular Nervous Mechanism, Am. J. Physiol. **65**: 174 (June) 1923.
2. Pike, F. H., and Coombs, H.: Science **61**: 691, 1922.

Current Comment

THE VISIT OF PROFESSOR PAWLOW

Dr. Ivan Pawlow, known to practically every physician in the world for his research in physiology, spent three weeks in the United States. We copy under General News in this issue of THE JOURNAL an account of his visit and departure, as given by the New York *Times*, July 20. It was his original intention to visit America, to see the scientific institutions of this country and to give lectures before scientific societies as a method of paying, in part, the expense of his trip. He was accompanied by his son, who is professor of physics in the University of Petrograd. Even the Soviet Government, which, it is understood, has not been particularly kindly to the old scientists of Russia, contributed fifteen hundred dollars toward the expense of his travels. Evidently all of the plans went awry so far as this country is concerned by the stealing of his money in New York; and so far as his attendance at the Physiological Conference in England on July 23 is concerned, by the action of the British Consulate in refusing to visé his passport. Professor Pawlow had thousands of friends and admirers in the medical profession of this country, and it is to be regretted that it was not generally known that he was here so that something could have been done to help him. As he returns to his home, one wonders whether the distinguished 75-year-old scientist will be more astonished by the apparent lawlessness of America or by the rigid governmental technicalities of Great Britain.

CONTRACEPTION: A BRITISH DISCUSSION

The fifth international neomalthusian and birth control conference was held in London in July, 1922. At that time the economic and sociological questions underlying birth control were extensively discussed, and a special meeting was devoted to a consideration of scientific methods of contraception. This and numerous other conferences on the subject in European countries indicate that the problem is a pressing one for those nations in which the increase in population and the smallness of territory make the matter of the food supply and the future development of the people a serious one. It seems to have become a matter of immediate concern in the British Isles, where the territory is limited by natural boundaries and where these problems have become intensified during and since the war. It is presumably for this reason that the *Practitioner* devotes its entire July issue to a presentation of the views of ten well known British physicians on this subject. Each of the writers discusses the physiologic and pathologic aspects of such contraceptive methods as are now generally known and available to the informed. Of the ten medical authorities who discuss the question, nine are in virtual agreement as to what constitutes the ideal method of contraception. The most pressing problem appears to be a decision as to how the available information is to be brought to the attention of those most needing it, and as to how such persons are to be encouraged to avail themselves of the information offered. This is, of course, not only a medical but equally an educational and social problem. From the present trend of affairs, it would appear that England and the continental countries may be forced at an early date to reach a new point of view relative to restrictions in this matter.

THE HEART IN DIPHTHERIA

It is generally recognized by clinicians that the heart is involved in many cases of diphtheria. Irregularities of various sorts may be observed; and, since the development of electrocardiographic methods of observation, almost every type of arrhythmia has been reported in connection with this disease, in which cardiac failure is an outstanding cause of death. Great uncertainty exists, however, regarding the nature of the processes that involve the circulation so seriously in such circumstances. An extensive literature has accumulated in which it seems to be debated whether the cardiac failure is attributable to injury and deterioration of the myocardium or its conducting system, or whether the disturbance rather is extracardiac, involving the peripheral vasomotor system. Mere bedside observation cannot furnish a complete and satisfactory answer to the questions at issue. The subject is one that demands for its proper elucidation that combination of careful clinical study of the patient, along with detailed postmortem examinations in the cases with fatal termination, which represents the highest type of medical investigation. A recent report by Loth [1] on the heart in diphtheria represents something of this sort. According to this study made at the Yale University School of Medicine, death in the fatalities of diphtheria due to circulatory failure is probably referable to injury of the myocardium itself or its conducting system. This is not what one might have been led to expect on the basis of previous animal experimentation. MacCallum,[2] for example, noticed that the actual work of the heart poisoned by diphtheria was fully as good as that of the normal heart. Consequently, he concluded that death occurring at the height of an attack of the disease is not exclusively the result of direct injury to the heart, although damage to this organ may play some part in the process. Loth has observed that the injection of lethal or sublethal doses of diphtheria toxin in guinea-pigs produces degenerative changes in the heart muscle similar to those seen in the human heart in fatal diphtheria; but such injections do not induce a true inflammatory reaction. In the human cases, a definite myocarditis of this sort is only exceptionally demonstrable at necropsy. Fat accumulation and cloudy swelling are regularly seen, but are not more pronounced than in other acute infectious diseases, such as scarlet fever, measles and pneumonia. It will require investigation of a far larger number of cases before a final conclusion can be reached with respect to the diphtheria heart; in the instances just recorded, at least, no specific myocardial lesion has been demonstrated.

1. Loth, Mathilde: The Heart in Diphtheria, Arch. Int. Med. **31**: 637 (May) 1923.
2. MacCallum, W. G.: The Mechanism of Circulatory Failure in Diphtheria, Am. J. M. Sc. **147**: 37, 1914.

ABRAMS VISITS MEXICO

Albert Abrams,[1] the Electronic Wizard of the West, recently visited Mexico. The visit, according to Mexican papers, was prompted by the invitation of a Mexican politician. We read in *El Universal* that Abrams arrived in Mexico City "accompanied by his attorney, nurse and valet." The name of the attorney is Gottesfeld; the names of the nurse and valet were not given. At the time of Abrams' arrival the same paper stated that the doctor would stay five days, "after which time he and his retinue will return to San Francisco." Abrams, however, only stayed ten hours, when he and his "retinue" left. According to *El Mundo*, Abrams' Mexican representative, one Levine, declared that Abrams had stated that drug manufacturers in the United States had spent at least a million dollars in an attempt to discredit him. In the same interview Levine is said to have declared that Abrams resigned from the American Medical Association because the influence of drug manufacturers and sellers caused THE JOURNAL to decline his advertising. Abrams' agent wound up by announcing that, after spending two months at Los Angeles, Abrams was going to Russia to "cure" Lenin. One feature of Abrams' visit to Mexico was a public lecture in which, among other subjects, he set forth at length his views on his "electronic reactions." In concluding, he invited physicians in the audience to ask questions. Dr. A. Brioso Vasconcelos, editor of the *Gaceta Médica de México*, official delegate at international congresses and a well-known sanitarian, asked Abrams for some proof of the many assertions he had made. Abrams, in reply asked whether the doctor would believe in the existence of a sound should he hear one. To this Dr. Vasconcelos retorted that he not only could hear sounds, but he could also tell when they were mere noise. Abrams then invited Dr. Vasconcelos to go to San Francisco for proofs of the "electronic reactions." The Mexican physician contented himself with replying, "I don't smoke." This Mexican idiom seems to be the equivalent of "I'm from Missouri," in what Mr. Mencken would call the American language. Mexican newspapers that support the politician who invited Abrams are now placing the blame for Abrams' sudden departure on Brioso Vasconcelos' skeptical attitude. The short stay of Abrams, however, has not disturbed the better element of the medical profession of Mexico, which is under no misapprehension as to the scientific status of the creator of the "electronic reactions."

1. A reprint of the matter that has appeared in THE JOURNAL on the Abrams vagaries will be sent on receipt of four cents in stamps.

An Answer to Antivivisectionists.—By experiments on seventeen hogs there was discovered a serum which will protect swine from cholera. In 1921, owing to extensive use of this serum, this loss was reduced from $75,000,000 to $27,907,000, a saving of about $47,000,000 to the farmers of this country in the case of one disease. But it is the welfare of animals that we are concerned with in this article. Forty-seven million dollars is the equivalent of say a million hogs. Here are a million animals that have been spared the suffering incident to disease, at the cost of suffering inflicted on a few of their fellows. What real lover of animals could wish the million to suffer in order that the few might be spared?—Ernest Harold Baynes, *World's Work*, August, 1923.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Col. William D. Wrightson, son-in-law of the late Gen. William C. Gorgas, has been reappointed by the federal government as malaria expert, with jurisdiction in ten counties in northern Alabama.

Chiropractor Fined.—D. T. Robinson, Thomasville, a chiropractor, was tried in the county court at Grove Hill, recently, for practicing medicine without a license, it is reported. Judge Cunningham assessed a fine of $50 in each of eight counts. The case was appealed to the circuit court.

CALIFORNIA

Physician Sentenced.—Dr. Holmes F. Troutman, Berkeley, who was convicted of a statutory offense in December, 1921, and sentenced by the judge to an indefinite term of from one to fifty years, has been sentenced to serve twenty years by the prison board, it is reported.

Drugless Healers Not to Prescribe Narcotics.—Practitioners engaged in the various branches of so-called drugless healing, including osteopaths and chiropractors, are not permitted to register under the Harrison Narcotic Law, according to a ruling given out by the Collector of Internal Revenue, John P. McLaughlin.

Hospital News.—The bond issue of $100,000 for the municipal hospital, Long Beach, has been found to be only about half the amount needed to properly complete the institution, according to reports. The Community Hospital Association has offered to give an additional $100,000, provided the management of the hospital will be turned over to the association which proposed to lease the institution at a nominal rent from the city.——The French Hospital, San Francisco, has awarded the contract for a nurses' home that will cost $75,000.

COLORADO

State Levy for Medical School.—A levy of 0.05 mill was adopted by the last legislature for the benefit of the University of Colorado School of Medicine, effective for a period of four years. At the same session of the legislature, provision was also made for the maintenance of the state general hospital and the state psychopathic hospital for the period of the present biennium.

CONNECTICUT

Personal.—Dr. Kate Campbell Hurd Mead, Middleton, was elected president of the Medical Women's National Association, at San Francisco, June 27.

State Health Commissioner Appointed.—Governor Templeton has announced the appointment of Dr. Stanley H. Osborn, Hartford, as commissioner of health for a term of six years. Dr. Osborn has been deputy commissioner in charge of the bureau of preventable diseases of the state department of health since 1920, and has been serving as commissioner since his predecessor, Dr. John T. Black, resigned.

DISTRICT OF COLUMBIA

Endowment Campaign a Success.—The campaign of Howard University to raise $250,000 in order to receive a similar sum from the General Education Board, New York (THE JOURNAL, July 14, p. 140), has been a success. Jesse Isador Straus contributed the last $3,000 of the needed sum. Following this contribution, colored people from various parts of the country pledged an additional $15,000, making a total endowment of $515,000. The department of the interior announces that the colored race now has only sixty-five women physicians and five women dentists in this country. Colored physicians and surgeons have increased only 633, or 23.07 per cent. in the last ten years. An interesting statement is that there are more colored physicians and dentists practicing in the cities of New York, Washington, Philadelphia, Cleveland and Chicago than in all the sixteen southern states combined, where fully 8,000,000 colored people live.

ILLINOIS

Physical Examinations.—As the first step in the physical examination campaign initiated by the National Health Council, the state department of public health has arranged to give a complete examination to all of its employes, more than 90 per cent. of whom welcomed the opportunity offered.

Society Picnic.—Ogle and Lee County Medical societies were hosts at an open-air medical meeting and picnic, Lowell Park, Dixon, July 26, to the societies of Stephenson, Winnebago, DeKalb and Whiteside counties. Dr. Edward H. Ochsner, Chicago, president of the Illinois State Medical Society, delivered an address on "Some Problems in Medical Economics."

Grocers Fined for Selling Medicines.—Eighteen grocers of Joliet were fined $20 each and costs for violating the state law which prohibits the sale of drugs except by a pharmacist. It has been the custom, it is reported, for grocers to sell iodin, glycerin, castor oil and other well known family remedies, and they were assured by the wholesalers that this was not in violation of the law.

Health Lectures at Summer School for Preachers.—The state department of public health has agreed to furnish faculty members for a course in public health and hygiene at the summer school for pastors, which opens, July 31, at Northwestern University, Evanston. A total of eleven lectures will be given by members of the department staff, most of which will be illustrated.

Chiropractors Arrested.—As a test of the new medical practice act which became effective, July 1, the state department of education and registration had arraigned three chiropractors before the justice of peace of Springfield charged with practicing medicine without a license. The department announced that these are the first arrests in a campaign for the rigid enforcement of the new regulations.

Chicago

"Therapeutic Lamp" Expert Arrested.—Peter A. Miller was arrested, July 19, by an inspector of the state department of registration and education, charged with violation of the state medical laws, it is reported. Miller, who, it is said, had a large clientele among the foreign element, used an ordinary glow lamp, and a tin plate attached to electric light wires, to give an electric shock, or "treatment."

Rehabilitation of School Children.—The rehabilitation of defective children will be undertaken on a more extensive scale in the Chicago schools next fall, it has been announced. Children who have lost limbs will be enabled to purchase artificial limbs on the installment plan, paying as little as $1 a week. Children having defective eyesight will be assigned to vision conservation classes of which there will be ten and for which the rooms will be lighted with special equipment. Textbooks for these classes will be printed in type no smaller than 24 point. Plans to help children crippled by infantile paralysis have also been made. The state has voted $100,000 for this work, which amount has been enlarged by an appropriation by the board of trustees and by private subscriptions.

Hospital News.—The following have accepted positions as consulting physicians at the reorganized St. Elizabeth Hospital: Dr. William A. Pusey, syphilology and dermatology; Dr. Frederick Tice, diseases of the lungs; Dr. Joseph M. Patton, diseases of the heart and circulatory system; Dr. Julius H. Hess, diseases of infancy and childhood; Dr. John Favill, diseases of the nervous system; Dr. Hugh McGuigan, clinical biochemistry. Dr. Frederick L. Pickoff has been appointed full-time pathologist and supervisor of laboratory diagnosis and investigation. Dr. Francis E. Senear has been appointed attending physician in dermatology. Dr. Richard B. Oleson, attending physician in tuberculosis and cardiology, and Dr. Albert E. Luckhardt, attending physician in neuropsychiatry.

INDIANA

Banker Warns of Forger.—The secretary of the Indiana Association of Bankers has warned physicians of the state to be on the lookout for a check forger whose victims are mostly physicians and surgeons. The forger has some physical defect for which the physician recommends hospital treatment and who thereon is requested to endorse a check. He is about 68 years of age, 6 feet tall, a little deaf, and has thin gray hair.

KANSAS

Personal.—Dr. Felton W. Landrum, Circleville, has been appointed by the governor a member of the state board of health.

LOUISIANA

Hospital News.—The Jefferson Parish police jury appropriated $10,000, July 11, toward the building fund of the Charity Hospital, New Orleans. Tangipahoa Parish, it is said, leads the country districts by its recent appropriation of $15,000. The firemen of the city have donated $1,242. The fund totaled, July 14, $257,811, which is still far short of the amount necessary to carry out the board of administrators' improvement program.

MAINE

State Board Elects Officers.—At a recent meeting of the State Board of Registration of Medicine, the following organization was effected: Drs. Luther G. Bunker, Waterville, chairman; Allen Woodcock, Bangor; William S. Thompson, Augusta; George R. Hagerty, Bar Harbor; William G. Chamberlain, Fort Fairfield; Adam P. Leighton, Jr., 192 State Street, Portland, secretary.

MARYLAND

New Hospital Opened.—The Edgewood General Hospital at Govans, a suburb of Baltimore, was formally opened, July 18 and 19. The board of directors consist of Drs. William J. Pillsbury, chairman, Harry C. Hess, Harry G. Prentiss, Harry W. Wheaton, Roy W. Locher and Waitman F. Zinn. The hospital will accommodate ninety patients. It has thirty-five private rooms.

New Water Supply for Hagerstown.—The state board of health has granted Hagerstown permission to install a new water system with the Potomac River as the source of supply. The installation will involve the expenditure of more than a million dollars, it is said, and the construction of a filtration plant and pumping station, and laying a 24-inch pipe overland for a distance of more than 7 miles. Hagerstown has outgrown its present water system, the source of which is at various places in the mountains.

MICHIGAN

Personal.—Dr. Hugh A. Stewart, Flint, has been appointed to the state medical board by Governor Groesbeck, to fill the unexpired term of Dr. Arthur M. Hume, Owosso, who recently resigned.——Dr. Ota G. Walters, Detroit, who has accepted a position in the Yale Hospital, Changsha, China, sailed from Seattle, July 24.

Seventy-Seven Medical Students Dropped.—It is reported that the University of Michigan School of Medicine recently "dropped" seventy-seven medical students "wanting to such an extent that they had been placed on a 'home' list as student failures." Forty-five of this number, it is said, were first year students.

MINNESOTA

Society News.—The Minneapolis Surgical Society will give a clinic day the first Thursday of each month, beginning October 4. The program will consist of operative clinics in the forenoon, "dry" clinics in the afternoon, and a literary program in the evening. All physicians and surgeons are invited to attend.——The St. Louis County Medical Society will hold its summer meeting on the Iron Range at the Esquagana Club, August 4.

Personal.—Dr. Oliver S. Olson, recently elected city commissioner of West Duluth, has been assigned to the department of public safety.——Dr. Lincoln A. Sukeforth has been appointed health officer of Duluth, to succeed Dr. Edward W. Fahey.——Dr. Oscar F. Mellby, Thief River Falls, has been appointed a member of the state board of health for an unexpired term ending Jan. 1, 1925.——Dr. John C. Staley, St. Paul, has been appointed superintendent of the Ancker Hospital, formerly known as the City and County Hospital. Dr. Staley was unanimously recommended for the position at a special meeting of the Ramsey County Medical Society.

MISSOURI

Chiropractors Arrested.—It is reported that the following chiropractors have been arrested and fined for practicing medicine without a license: Mrs. Viola Oswald, Cape Girardeau, $500; B. O. Huntley, H. H. Hilbert and A. J. Meyer, St. Louis, each $50.

Baby Clinic.—A baby clinic to be held from 2 to 4 p. m. Wednesday has been announced by the Independence Sanatorium, Independence. Children under 6 years of age will be

admitted. This is the outgrowth of the examination of babies held at the sanatorium in May at which time 280 children were examined.

MONTANA

Public Health Association.—At the annual session of the Montana Public Health Association, Butte, Dr. Arthur Jordan, Helena, was elected president; Dr. Roscoe C. Main, Billings, vice president, and Dr. William F. Cogswell, Helena, secretary. Simple goiter and Rocky Mountain spotted fever were prominent among subjects discussed. It was said that the serum prepared by Dr. Hideyo Noguchi for the latter disease had been administered to more than 150 residents of the Bitter Root Valley.

State Medical Association Meeting.—The following officers were elected at the annual session of the state medical association, Butte, July 12: Dr. Charles R. Monahan, Butte, president; Drs. Herbert D. Kistler, Butte, Bernard V. McCabe, Helena, Lewis C. Ford, Sr., Lima, vice presidents; Dr. Elmer G. Balsam, Billings, secretary-treasurer; Dr. Creswell T. Pigot, Roundup, delegate to American Medical Association's annual session; Dr. Harmon T. Rhoads, Choteau, alternate. Drs. George McGrath, Hamilton, William W. Taylor, Whitefish, Thomas A. Grigg, Butte, and Ernest D. Hitchcock, Great Falls, were elected councillors.

NEW HAMPSHIRE

Hospital Opened.—The Peterborough Hospital, Peterborough, was opened for the care of patients, June 30. The hospital consists of the remodeled house of Mr. and Mrs. Robert Parmalee, with extensive additions, and was made possible by the contributions of Mr. Parmalee, Mrs. B. P. Cheney, and Mrs. Carl Kaufman, and others. There are nine private rooms with two rooms of three beds each. The medical staff consists of Drs. H. Cutler, Frank B. Foster, Charles W. Harrington, and Franklin G. Warner, all of Peterborough. There is also an associate medical staff comprising physicians in neighboring cities, as well as a consulting staff of specialists.

NEW JERSEY

Camden Health Director Appointed.—The appointment of Dr. Arthur L. Stone, Pittsfield, Mass., as director of health of Camden, was announced, July 18. He will take office August 1, succeeding the nine members of the board of health legislated out of office by the city commission. Dr. Henry H. Davis, a member of the former board for twenty-five years, has been directing the department during the past two months, pending the appointment of a director.

NEW YORK

Homeopathic Hospital Changes Name.—Supreme Court Justice Stalcy, Albany, granted an order permitting the board of trustees of the Homeopathic Hospital of Albany to change its name to "Memorial Hospital," effective August 1, it is reported. The purpose of the change was, it is said, to show that the institution had broadened its scope. Other grounds were: "That in all the activities of the hospital it should be and is the aim of those in authority to be abreast of the most advanced scientific developments in medical and surgical treatment, irrespective of any particular or prescribed school."

Epidemic of Puerperal Septicemia.—The *Sanitary Bulletin*, Buffalo (May), reports an unaccountable epidemic among puerperal women in the hospitals and maternities of Buffalo. A few days after delivery, the affected mothers developed a fever which in some cases rose to 104 degrees, and persisted for several days. The epidemic occurred in nearly every maternity hospital in the city. A few patients died. The department of health of Buffalo made an investigation, but was unable apparently to determine the direct cause. Among the results of the investigation tabulated (*Boston Medical and Surgical Journal*, July 12, 1923) are: (1) The period of infection above referred to corresponded to the time when most of our measles epidemic occurred in the city, there being 625 cases of measles in January, 955 in February, 1,457 in March, 1,157 in April, and 785 in May. To what extent, if any, this measles epidemic had to do with the puerperal epidemic is problematical; but inferences may be drawn from the fact that in some instances it was learned by the hospital authorities that some of the infected mothers came from homes in which measles existed—unknown to the hospital authorities. Several cases were recorded as developing a rash of measles or scarlet fever while in the hospital. (2) Promiscuous visiting to maternity cases, especially by children, was almost universal.

New York City

Safety Show.—Brooklyn will hold a safety, health and sanitation exhibition, October 20-27, the aim of which will be to reduce through education preventable deaths, accidents, property destruction, and disease through the application of modern protective devices and methods.

Morbidity in New York City.—A statement issued by the United Hospital Fund, June 30, declares there are on an average, 180,000 people a day sick in New York City, whose illnesses cost the community $54,000,000 a year. The cost of preventable illness and deaths in the United States as a whole, it is said, is $3,000,000,000 a year. The report emphasizes the fact that hospitals supported by public contributions should devote greater efforts to the preventive side of their work.

Automobile Deaths Decrease.—According to figures collected by the Bureau of Public Safety, there were 548 persons killed by motor vehicles during the first six months of 1922, compared with 553 during the corresponding period of this year, although the number of automobiles in the city has increased from 269,945 to 315,614. The decrease in the number of accidents is attributed to the safety campaign, to which children have apparently given greater heed than adults. The Bureau of Public Safety has detailed police lieutenants to lecture to more than 250,000 children in the public and parochial schools of the city. In the first six months of 1922, 242 children under 16 years of age were killed and 5,623 injured, while during the same period this year 200 children have been killed and 4,801 injured.

NORTH CAROLINA

Supreme Court Holds Health Statute Void.—The supreme court has decided that the statute authorizing the board of commissioners of Gaston County to issue bonds to construct a tuberculosis hospital is void. The state constitution prohibits, it appears, the enactment of any local statute on various subjects, among which are "health, sanitation, or the abatement of nuisances."

Personal.—Dr. William M. Jones, Jr., Greensboro, for eleven years county physician and health officer, has tendered his resignation to be effective not later than August 1.—Dr. Joseph L. Spruill, until recently on the staff of the North Carolina State Sanatorium for Tuberculosis, will take charge of the Guilford County Hospital for the Tuberculous September 1.——Dr. Edwin H. Bowling, Durham, received the degree of doctor of laws from Union Christian College, Marion, Ind., at the recent commencement, in recognition of his work on pellagra.

NORTH DAKOTA

Hospital News.—More than thirty pledges for at least $1,000 have been obtained for a new hospital building at Valley City.

OHIO

Parking Privileges Wanted.—The Marion County Medical Society adopted a resolution requesting the mayor of Marion to lift the ban on parking restrictions for physicians and to reserve parking space for them near their offices and in front of drug stores, it is reported.

Delaware Discontinues Sanitary Policeman.—The city council, Delaware, passed an ordinance abolishing the position of sanitary policeman, whose duties will fall on the health officer and other members of the health department. Arrests now for infractions of sanitary regulations will be made through the usual police channels.

Baby Clinic for Barberton.—A baby clinic was opened in Barberton, July 11, with the cooperation of local physicians. The clinic will be open from 8 a. m. until 5 p. m., when children under 6 years of age will be examined, and mothers advised as to their care. Heretofore, much of this work has been done in the neighboring city of Akron.

OKLAHOMA

Physicians' Exchange Organized.—The Pittsburgh County Medical Society has organized a physicians' exchange to facilitate the calls and service of its members.

Health Officers Appointed.—Dr. Bart M. Ballenger, Strong City, has been appointed health officer for Roger Mills County.——Dr. Waldo B. M. B. Newell, Enid, has been

appointed health officer of Garfield County.——Dr. William M. Cott, Okmulgee, has been appointed city superintendent of health.

OREGON

State Society Reelects Its First President.—Dr. Alfred C. Kinney, Astoria, elected forty-nine years ago as first president of the Oregon State Medical Association, was unanimously reelected to that position at the annual meeting in Portland, July 11. Other officers elected were as follows: Drs. Richmond Kelly, Portland; Otis B. Wight, Portland; David Robinson, Tillamook, vice presidents; Dr. Ralph C. Walker, Portland, treasurer; Dr. Courtland L. Booth, Portland, secretary; Drs. Roy C. McDaniel and Roy S. Stearns, Portland, councilors.

PENNSYLVANIA

Typhoid at Karthaus.—Eighteen cases of typhoid fever were recently reported at Karthaus, Clearfield County. A health engineer from the state health department, it is said, will be detailed to determine the cause and devise procedures to stop the epidemic. One death has been reported.

Hospital Campaign.—The campaign for funds for Mercy Hospital, Johnstown, reached a total of more than $280,000, which exceeds the quota by more than $30,000. In three hospital campaigns in the last six weeks, the people of Johnstown and vicinity have subscribed about $900,000, it is reported.

Smallpox in Cambria County.—Twenty-one cases of smallpox have developed in Cambria County since May 1, all of which have been isolated in the Municipal Hospital, Johnstown. These cases, it is said, were probably due to the importation of negroes. Fourteen of every hundred negroes who applied for work at the Bethlehem Steel Company were unvaccinated. Only one case of smallpox has developed in a white person.

Philadelphia

Jefferson Plans Campaign.—The board of trustees of Jefferson Medical College has announced a campaign to raise funds to meet insistent demands for greater hospital service. This will be the forerunner of the centenary of the institution in 1925. A fourteen-story annex to the hospital, now under construction, will be completed at that time.

University President Nominated.—Dr. Josiah H. Penniman, Ph.D., LL.D., provost of the University of Pennsylvania, was elected president of that institution at a meeting of the board of trustees, July 16. The trustees have thus filled the post created for Major-General Leonard Wood, who declined the position because his presence was needed in the Philippine Islands. The salary is $25,000 a year.

Professor Keen at 86.—Dr. William W. Keen represented Philadelphia at the sixth triennial congress of the International Surgical Society, London, England, July 17. The Prince of Wales in welcoming the delegates said: "I am glad to extend personal welcome to the society's last president, Dr. William W. Keen, who despite the eighty-six years he carries so lightly and the weight of his world-wide reputation, is again among us ready as always to participate in every meeting, social or scientific, of this distinguished gathering."

Committee on Health and Medicine for Sesquicentennial.—In preparation for the Sesquicentennial Exhibition in 1926, and for the international congress which will meet coincidentally with the Fair, the executive committee of the Sesquicentennial Exhibition Association recently appointed, among others, the following on the committee on health and medicine: Drs. William C. Braisted, Jay F. Schamberg, Henry K. Pancoast, David Riesman, Charles J. Hatfield, J. Leslie Davis, Edward B. Hodge, Chevalier Jackson, George A. Knowles, Hubley R. Owen, William Duffield Robinson, J. P. Crozer Griffith, Lewis Brinton, Barton Cooke Hirst, Charles S. Hirsch, Samuel McC. Hamill, Henry D. Jump, Desiderio A. Roman, Harry B. Wilmer, Jr., and O. G. Lewis.

SOUTH CAROLINA

Personal.—Dr. William M. Bevis has been appointed medical director of the Waverly Sanitarium, Columbia.——Drs. Julius H. Taylor, Columbia, and Robert E. Abell, Chester, have been appointed members of the state board of medical examiners.

Antimalaria Work.—Branchville has voted a bond issue of $4,800 for ditching and draining and other work designed to destroy the breeding places of mosquitoes.——Several other towns in the state are now actively engaged in similar work, Saluda having recently joined the number.——Georgetown, in addition to the draining and ditching, is trying out creosote in the lumber camps, negro cabins and other houses which do not warrant screening, it is reported.

TENNESSEE

Smallpox at Chattanooga.—Twelve cases of smallpox were reported among the colored people of Chattanooga, July 7, all of which, it is said, were imported from other cities. The cases appear mild and all have been quarantined.

Dairy Herd Quarantined.—The city health department, Chattanooga, has quarantined a dairy herd whose products were sold in the city and whose owner has typhoid fever. Further sale of all products from this herd has been prohibited until it has been moved to another place and kept in quarantine for from ten to fifteen days. The cattle have been moved and are under observation.

TEXAS

Society Entertains Surgeon-General.—The El Paso County Medical Society held a special meeting and gave a dinner to Surg.-Gen. Merritte W. Ireland, June 18. General Ireland gave a talk on "Preparedness." Among others present were the mayor, R. M. Dudley, and Judge Ballard Coldwell.

El Paso Health Department Reorganized.—The health department of the city of El Paso has been reorganized and placed on a full-time basis. At the request of the mayor, an officer of the U. S. Public Health Service was assigned to El Paso to reorganize the department and to direct the work during reorganization. The organization follows the usual lines of municipal health organization, although it was necessary in this city to incorporate with it medical charities. The board of health, of which the mayor is chairman, comprises three members, two of which must be physicians and members of the El Paso County Medical Society. The health officer is an ex-officio member and acts as secretary. The board of health is distinct from the health department which is directly under one of the aldermen or commissioners. The budget for 1923 was $85,625. El Paso has had, it is said, a high death rate, which in 1921 reached 25.2 per thousand living population. The new department now has twenty-three full-time employees, and five on part time.

VIRGINIA

Tuberculosis Clinic Established.—A permanent tuberculosis clinic has been established in Loudoun County through the efforts of the county branch of the Virginia Tuberculosis Association. It will be conducted in conjunction with the county health department. Dr. Henry A. Latane, Alexandria, is the acting clinician.

Personal.—Dr. Osbourne O. Ashworth, Catawba, became a member of the staff of St. Elizabeth Hospital, Richmond, July 1.——Dr. James E. Wood, Jr., who, since graduation, has been intern and house officer at the Massachusetts General Hospital, Boston, was elected by the board of visitors an instructor in internal medicine at the University of Virginia.——Dr. Lawrence T. Royster, Norfolk, Dr. Isaac Pierce, Tazewell, and Dr. Achilles L. Tynes, Staunton, have been appointed by the governor members of the state board of health.

WISCONSIN

Health Legislation.—At the legislative session recently closed, a number of bills pertaining to disease and popular education in health matters were passed. A bill was enacted to add the teaching of symptoms of disease and the proper care of the body to the curriculum in all public schools, it is reported; however, such instruction shall not be given over the written objection of parents. The Wisconsin Anti-Tuberculosis Association sponsored a measure which permits admitting to sanatoriums any person having incipient symptoms of tuberculosis, for the purpose of diagnosis and treatment. An amendment also changed the word "indigent" to "unable to pay," which will simplify the admission of such patients. A bill was passed by which any county may establish a county hospital for indigent and pay patients. The control of venereal disease was strengthened by two enactments, it is said, one preventing any person with venereal or a communicable disease from working in a place where food is served or sold; the other permitting qualified officers of the state board of health, as well as state and deputy health officers, to file complaints against persons with such maladies

in order to force their commitment. Another new law removes the right of secrecy as to a physician's information regarding the presence of venereal disease. The state also accepted the Sheppard-Towner Maternity Law and made provision for the necessary appropriation.

PHILIPPINE ISLANDS

The Hospital Service in the Philippine Islands.—The insular government is planning to provide public hospitals, it is reported, in all provinces of the archipelago, and a large appropriation has been made for that purpose. A hospital committee has been appointed, under the chairmanship of Col. E. L. Munson, to study plans of organization, and administration of provincial hospitals.

Medical Convention in the Philippine Islands.—A convention of all presidents of sanitary divisions in the province of Rizal and all the physicians in the service of public hygiene of various parts of the Island of Luzon was recently held on the heights of Antipolo. The governor general, Vice Governor Gilmore, Dr. Munson and Dr. Ruiz delivered addresses. A few days later, the presidents of the sanitary divisions of the island of Luzon held a conference in the city of Manila.

CANADA

Society News.—The Academy of Medicine of Western Ontario elected the following officers for the year 1923-1924: Drs. George C. Hale, London, president; Frederic J. H. Campbell, London, vice president; John I. Ferguson, London, treasurer; G. A. Ramsay, London, secretary; Emerson L. Hodgins, London, William M. Shoebotham, London, and John C. Wilson, London, executive committee.——The British Association for the Advancement of Science will hold its annual convention in Toronto, Canada, in September, 1924.

GENERAL

Medical Veterans Elect Officers.—At a meeting of the Medical Veterans of the World War, San Francisco, June 28, the following officers were elected: Dr. J. Carey Vaux, Pittsburgh, president; Dr. B. F. Adler, San Francisco, vice president; Dr. A. T. McCormack, Louisville, Ky., secretary, and Dr. P. E. Blackerby, Louisville, Ky., assistant secretary-treasurer. The organization, it is said, numbers 11,000 physicians.

Health in England.—The minister of health, Mr. Neville Chamberlain, speaking before the House of Commons, said, it is reported, among other things, that in 1900 the deaths from cancer were 829 per million of the population, and in 1921 they had risen to 1,215. There was no doubt, he admitted, after making allowance for improved diagnosis and greater longevity, that the records established a real increase in cancer. Deaths from tuberculosis, he said, in 1867 were 2,653 per million; last year they had fallen to 855. In his opinion, the smallpox situation in England was serious. Twenty years ago, 75 per cent. of babies were vaccinated; today, only 38 per cent. are vaccinated.

Awards for Advancement in Community Health Service.—The American Public Health Association, New York, announces that it will offer a series of awards in recognition of attainment and advancement in community health service. The status of the health work of different cities will be determined by surveys conducted by agents of the association. Ratings, in accordance with a plan to be considered at the annual meeting of the association in Boston, October 8, will take into account all health agencies, voluntary as well as official. The first series of awards will be made to cities of 100,000 or more population which show the most nearly adequate community health service as of January, 1924. Similar awards will be made in succeeding years, it is proposed. Selection of the winners will be made not only on actual attainment, but also on progress since January, 1924.

Committee on Municipal Health Department Practice.—Through the cooperation of the Metropolitan Life Insurance Company and the United States Public Health Service, the work of the committee on municipal health department practice will be continued and extended. This committee, appointed three years ago by the American Public Health Association, has conducted a survey of the organization and work of eighty-three large municipal health departments, the report of which will soon be published as a special bulletin by the U. S. Public Health Service. Surgeon-General Cumming, it is said, has agreed to establish an office of administrative health practice to work in cooperation with the American Public Health Association Committee, which will make available for the new office its records. New information obtained at the office in Washington will likewise be at the disposal of the members of the American Public Health Association.

Association News.—A joint meeting of the Medical Society of the Missouri Valley and the Interstate Society of Radiology and Physiotherapy will be held in Omaha, September 18-21, under the presidency of Dr. Charles L. Mullins, Broken Bow, Neb.——The American Dietetic Association will hold its sixth annual meeting in Indianapolis, October 15-17, at the Hotel Claypool. Dr. Russell M. Wilder, Mayo Clinic, Rochester, Minn., will address the meeting.——At the recent meeting in Detroit of the American Psychiatric Association, the following officers were elected: Drs. Thomas W. Salmon, Larchmont, N. Y., president; William A. White, Washington, D. C., vice president; Clarence Floyd Haviland, Albany, N. Y., secretary-treasurer.——The thirty-sixth annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons will be held in Philadelphia, September 19-21, 1923.——The eighth annual meeting of the American Association of Industrial Physicians and Surgeons will be held in Buffalo, October 1-3.——The annual assembly of the Tri-State District Medical Association of Iowa, Illinios, Wisconsin, Minnesota and districts of surrounding states will be held at Des Moines, Oct. 29 to Nov. 1, 1923.——The American Association for the Advancement of Science will hold its seventy-seventh meeting at Los Angeles, September 17-30.——The seventh International Congress of Psychology to be held at Oxford, England, July 26 to August 2, will be restricted to 200 trained physiologists and a few others approved by the committee.

Professor Pawlow's Visit to America.—"The three weeks spent in America by Dr. Ivan Petrovitch Pavlov, winner of the Nobel prize for medicine in 1904, and one of the most distinguished physiologists in the world, have not been pleasant," said the New York *Times* last week. "He was robbed of $2,000 in a train in the Grand Central Terminal, was forced to become the guest of the Rockefeller Institute because of his predicament and then was refused a British visé to his passport because he was a Russian.

"As a result, Dr. Pavlov, who will sail today on the White Star liner *Majestic*, will not be able to attend the Edinburgh Congress of Physiologists, where his presence was desired by his fellow scientists. With his son, Professor Vladimir Pavlov, he will leave the *Majestic* at Cherbourg under French visé which was readily granted to him, and after a short stay in France will return to Russia.

"Dr. Pavlov is a tall, distinguished looking man, straight despite his 75 years. He left Russia, where he conducts laboratories in Petrograd, to attend the Pasteur anniversary celebration in Paris. He came to this country three weeks ago and after a few days started for New Haven to visit friends. Few persons knew that he was in the country, for if they had he would have been welcomed by scientists here as a celebrated physiologist.

"He and his son had hardly taken their seats on a train in the Grand Central Station when three men set upon the old man and snatched from him his pocketbook, containing all their funds, $2,000. The porter and the son attempted to catch them, but were unsuccessful, and the old man and his son left the train, perplexed as to what they should do in their predicament. They finally got in touch with Dr. P. A. Levene, of the Rockefeller Institute, and since then have been the guests of the institute.

"When Dr. Pavlov attempted to get the British visé to his passport he was told that it could not be done. He was accompanied by Dr. Levene, who explained that Dr. Pavlov was not a Bolshevist, that in fact he was anti-Bolshevist, but the passport bureau of the British consulate maintained that they could not visé any Soviet passport without express instructions. Two visits were made by the Pavlovs and Dr. Levene to the consulate, on Thursday and again yesterday, but without success, the son explained last night.

"In his Petrograd laboratories Dr. Pavlov has thirty doctors and other helpers working under his direction. Despite his anti-Soviet beliefs, the Soviet government has protected him and aided him in maintaining his laboratories because of his scientific research. Recently the Soviet government published his collected papers and distributed them. In recent years he has studied the psychology of animal instinct and formed theories of sleep and hypnotism. His chief researches deal with the physiology of the heart, secretion of the glands, digestion and the producing of gastric and pancreatic fluid."

FOREIGN

The Kaiser Wilhelm's Academy at Berlin.—The national public health service has recently come into possession of this institution, formerly the military medical training school. The plan to consecrate it solely to medical research had to be abandoned, but its extensive library and unique collections of war and constitutional pathology specimens are to be maintained intact.

Call for Physician on the Faroe Islands.—The *Ugeskrift for Læger* questions the alleged overproduction of physicians. Three calls have been made in vain to fill the position of chief physician at the hospital for tuberculosis at Thorshaven, Faroe Islands. It is an institution of thirty-four beds, in a healthy climate. There is a good opportunity to develop private practice, in addition to the salary offered.

Vaccination in Switzerland.—The sanitary authority at Zurich has issued a compulsory vaccination order applicable to all persons engaged at public establishments, factories and schools, and their families. Persons disobeying the order are subject to a fine of from 10 to 500 francs, or imprisonment. A number of cases of smallpox have recently been reported in northern and central Switzerland.

Japanese Medical Mission at Home.—The Japanese Medical Mission, which recently toured the United States and Canada to study medical institutions, has returned home. The report of the mission has not yet been received, but the impression gained is indicated in an informal report given out by Dr. K. Miura, head of the mission, who said, in part: "Educationally speaking, the United States and Canada are now seeking quality rather than quantity; especially is this true in regard to the study and practice of medical science. . . . In the building of hospitals and medical schools, all is of the best. Public sanitation is excellent and preventive means are being taken in a large measure. Sickness is rapidly becoming less prevalent on that continent when present conditions are compared with those of years ago."

Control of Insulin in Scandinavia.—Since remedies cannot be patented in Norway, Sweden and Denmark, the preparation of insulin would naturally be open to any manufacturer desiring to manufacture this product. Prof. August Krogh, it is said, foresaw possible objections to the open manufacture of insulin in these countries and went to Toronto where arrangements were made by which no preparation can be sold as insulin in Scandinavia unless approved by him. Löven's Kemiske Fabrik will undertake the manufacture of insulin without profit in Scandinavia. The laboratory will be an independent institution, and only the direct cost of manufacture, control and distribution will be considered in fixing the price. After the capital sum invested in the institution has been paid, the proceeds of the sale of insulin will be devoted to further research and to extending the plant. The charge provisionally fixed for every Toronto unit of insulin is 20 Danish öre.

Personal.—Dr. Thomas Jones Mackie has been appointed Robert Irvine professor of bacteriology, University of Edinburgh, to succeed the late Prof. James Ritchie.——Sir Clifford Allbutt received the Triennial Gold Medal of the West London Medico-Chirurgical Society at its annual dinner, June 19.——Sir Anthony Alfred Bowlby, president of the Royal College of Surgeons, England, was recently honored by the king with a baronetcy. Dr. George Francis Blacker, Dean of University College Hospital Medical School, was knighted on the same occasion.——The Prince of Wales has accepted the invitation of the president and council to be present at the annual dinner of the Royal Society of Medicine, December 11.——Dr. S. Recasens, dean of the medical faculty, has been elected senator as the representative of the University of Madrid.——Dr. B. Rodriguez Arias, of the editorial staff of the *Revista Española de Medicina y Cirugía*, Barcelona, has been elected foreign member of the Société médicopsychologique at Paris. He is also a member of the French Société de neurologie.——The prize of 100 pesetas offered by the Spanish journal *Archivos de Medicina y Cirugía* has been awarded to Drs. Gottschalk and Nonnenbruch for their work, "Importance of the Liver for the Intermediate Metabolism of Albumin."——The seventieth birthday of Dr. Max von Gruber, professor of hygiene, Munich, was the occasion of many greetings from home and abroad; a volume of the *Archiv für Hygiene* was presented as a *Festschrift*.——Dr. and Senator Bassini has presented the Bassini Institute for Treatment of Hernia, Milan, with a large estate near Verona. Dr. A. Preto, professor of operative medicine at Padua, is the founder and director of this charitable institute to which he gave Bassini's name.——The public health service of Spain has appointed the following three physicians to the fellowships offered by the Rockefeller Foundation for a visit of inspection and study in America: Drs. Fernández Besones, inspector for Salamanca province; Ortiz de Landazuri, of the central sanitary brigade, and Fuegó, the bacteriologist of the public health headquarters at Vigo.——Prof. R. Lozano of Zaragossa has selected as the title for the lecture he will deliver at the Paris medical faculty, "Unusual Facts of Medicine."——One of the oldest medical societies of Europe, the Cercle médical of Antwerp, recently presented its honorary president, Dr. Tricot-Royer, the medical historian, with a bronze portrait tablet, the manifestation concluding with a banquet.——The prizes founded by Dr. Sarabió y Pardo, Madrid, for eminent work in pediatrics, has been awarded to Dr. Santiago Cavengt, editor of *Pediatría Española*, for his publications on "Hysteria in Children" and "Infantile Endocrinology." Dr. Sarabia y Pardo has been decorated by the French government as chevalier of the Legion of Honor.——Dr. Albrecht Kossel, professor of physiology at Heidelberg, retires this year, having reached the age limit.——Prof. W. S. van Leeuwen, Leiden, has become "scientific editor" for an important daily paper in the Netherlands, the *Telegraaf*, and has taken up the work of "popularizing medicine."

Deaths in Other Countries

Sir James Reid, physician to Queen Victoria and King Edward, London, England, aged 73.——Col. **John Girvin,** A.M.S., retired, London, England, recently.——**Hugh Clayton Fox,** F.R.C.S.I., England, aged 59, of angina pectoris.——Dr. **Carl von Hess,** professor of ophthalmology at Munich, author of works on physiologic optics; aged 60; received the Graefe medal in 1922.——Dr. **Andres Posada Arango,** Medellín, formerly president of the Academia de Medicina of Medellín, aged 84.——Dr. **P. Mathes,** professor of obstetrics and gynecology at Innsbruck.——Dr. **Praxedes Llisterri Ferrer,** professor of clinical medicine at Valencia.——Dr. **M. Pietravalle,** Naples, vice president of the house of deputies and director of the local public hospital system, assassinated at the age of 55.

Government Services

Reserve Officers' Training Camp

The Reserve Officers' Training Camp, at Carlisle Barracks, Pa., was opened, June 14, being the third of its kind held at Carlisle. Reports indicate an attendance of about 200 medical, forty-five dental and eleven veterinary students, a total of 256, from seventeen Eastern universities. Reserve Officers' Training Corps units of the first, second, third, fourth and fifth corps areas are sending medical, dental and veterinary students to Carlisle this year to receive summer training. Sixteen professors of military science and tactics from the camp staff serve as company commanders. The largest group of students is from Ohio State University; the second largest, from Jefferson Medical College, and the third largest, from the University of Pittsburgh. Col. Percy M. Ashburn, M. C., is the camp commander, and Lieut.-Col. William J. L. Lyster, M. C., is in command of the provisional battalion of students. The course of instruction is entirely practical, consisting of demonstrations and problems. The four student companies have been organized into the following units of a medical regiment: (1) regimental detachment; (2) a collecting company; (3) an ambulance company, and (4) a hospital company, rotating at the end of each week so that every student may serve in each of these units. The camp is near the historic Carlisle Athletic Field. The students are quartered under canvas, utilizing field equipment. Civilian cooks do the cooking, utilizing the students in rotation as "K. P's." Students may use the post exchange, the post gymnasium, the baseball diamonds and the tennis courts and volley ball equipment. There are classes in equitation. The Service Club is available at all times to the students. Motor truck trips to the Battlefield at Gettysburg are planned. A field meet was held July 4. Reports from Carlisle indicate a loyal cooperation on the part of the student body. Similar but smaller camps for the R. O. T. C. of the medical department are located at Fort Snelling, Minnesota; Camp Lewis, Washington, and at Fort Sam Houston, Texas.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 7, 1923.

The British Empire Cancer Campaign

In a previous letter, the foundation of the British Empire Cancer Campaign was described. The Royal Society and the Medical Research Council have agreed to receive delegates of the campaign to discuss the formation of a scientific committee for the distribution of the money subscribed for research purposes, and the revision of the articles of association of the campaign which may be necessary to give effective powers to the committee. The grand council of the campaign has held its first meeting. The council consists of representatives nominated by the principal bodies and institutions especially interested in cancer, seven by the Imperial Cancer Research Fund, seven by the Cancer Hospital, seven by the Middlesex Hospital, and three by St. Mark's Hospital. A small subcommittee was appointed for the purpose of considering changes in the articles of association, so as to secure the cooperation of all parties interested in the undertaking.

The New Vaccine Treatment of Tuberculosis and Other Diseases

The new vaccine treatment, introduced by Professor Dreyer of Oxford, is attracting a great deal of attention and, in reply to inquiries, the Medical Research Council issued the following important statement: When it had been shown by experiment that small animals highly susceptible to tuberculosis, when infected with tubercle bacilli, were improved or lost the signs of active disease after the use of the new vaccine, arrangements were made for trials of this treatment under suitable control at three London hospitals. The results have been favorable almost without exception in tuberculosis of the lungs or other internal organs, but no final opinion can be pronounced until a longer period has elapsed. In tuberculosis of glands and of the skin, it can already be said that the results have surpassed any attained regularly by other methods. Encouraging results have also been obtained in puerperal fever and other septic conditions. There is therefore good ground for the hope that an important advance in the treatment of tuberculosis and other diseases has been made. The council is arranging for trial of the treatment by physicians and surgeons at centers in different parts of the country where suitable facilities can be provided. Supplies of the new vaccine will be prepared for distribution at the Oxford School of Pathology, from which for some years serums for typhoid, paratyphoid and dysenteric infections have been made for the Medical Research Council. As soon as the progress of the patients has been sufficiently watched, full publication will be made of the results. If these justify the hopes formed, large supplies of the vaccine can be produced at small cost.

Medical Fellowships in the United States for British Graduates

The Rockefeller Foundation has provided the Medical Research Council with a fund for providing fellowships in medicine in the United States for graduates who have had some training in research work in the primary sciences of medicine or in clinical medicine or surgery, and are likely to profit by work at a university or other chosen center in the United States before taking up positions for higher teaching and research in the United Kingdom. A fellowship will be of the value of not less than $1,575 for a single fellow or $2,350 for a married one, with traveling expenses and some other allowances in addition. It will be tenable for one year. Similar fellowships are to be provided for American graduates desiring to work for a time in this country.

The Smallpox Epidemic

The ministry of health has issued a statement on the smallpox situation. The Gloucester epidemic was not dealt with as early as it might have been, because of the refusal of the local health officer to admit the presence of the disease on a large scale in the city. But cases were admitted as early as April, and he was advised of the danger early in May by the ministry on cases occurring at a distance from Gloucester, which were traced to that city. At the end of May, a medical officer of the ministry visited various suspected cases in Gloucester and found them to be smallpox. The health officer of Gloucester would not agree, and another expert, Dr. Cameron of the metropolitan asylum board, was sent to the city and confirmed the diagnosis of smallpox. A subsequent house to house visitation by officers of the ministry established the existence of an epidemic. Then Dr. Davison, senior assistant medical officer of health of Birmingham, was invested with control. A special hospital and vaccination stations were established, and contacts were traced as far as possible. Fresh cases are occurring, but the situation is well in hand, though there is urgent need of vaccination of the population. The Gloucester epidemic shows the danger of incorrect diagnosis. It is the duty of the general practitioner to notify cases of smallpox to the health officer, and if in doubt, to consult him. If, in his turn, the latter has any doubt, he should consult the ministry of health, and its staff will at once assist him as to the diagnosis, and steps will then be taken to stamp out infection. In view of the number of calls now being made on the ministry and the limited staff available, arrangements have been made by which health officers expert in smallpox are ready to give immediate help in twelve districts into which the country has been divided. In June, 408 cases of smallpox were notified in England and Wales, as compared with 151 in January, 154 in February, 214 in March, 141 in April, and 112 in May. The disease is widely spread over the country. The notifications in the first six months of the year are largely in excess of those for the whole of last year, and out of all comparison with those recorded since the last epidemic period of 1902 to 1904. In view of the neglect of vaccination (the percentage of children vaccinated in 1921 being 38 of the births, as compared with 80 in 1907), and the rarity of adult revaccinations, the ministry regards the situation with concern and fears a serious outbreak. It considers that, now that infection has been introduced, the only remedy is increased recourse to vaccination. In the House of Commons, Mr. Neville Chamberlain, minister of health, uttered a serious warning. He said that, as the result of vaccination, smallpox was for some time almost extinct in this country. In 1917, there were only seven cases, but there had been a serious revival of the disease; in 1922, there were 973 cases, and this year, up to June 16, 955. The disease was present in a mild form, but might soon develop into a more virulent one. Owing to the neglect of vaccination, they were faced with the possibility of a great epidemic dangerous to health and perhaps to life.

Dr. William Mayo

Dr. William J. Mayo is visiting this country, and has delivered at the Royal Society of Medicine an address on the "Surgery of the Bile Ducts." The surgical section of the society gave a complimentary dinner in his honor, at which the president, Mr. James Berry, presided and was supported by a large attendance of fellows and members from all over the United Kingdom. Responding to the toast of his health, Dr. Mayo described the zeal for education in his state of 3,000,000 inhabitants, which had 11,000 students attending its

university, and 8,000 intimately connected with it. Sir Berkeley Moynihan proposed "American Surgery," reciting the names and achievements of a series of American surgeons, most of whom, like himself, bore Irish names. He described Dr. William Mayo as "the greatest statesman of surgery of all time." The characteristics of American surgery, he considered, were masterly technic, fertility in suggestion, integrity of utterance and unbounding hospitality to new ideas. Dr. Mayo has also visited Dublin, where he was present at the "Charter Day" dinner of the Royal College of Surgeons in Ireland. Replying to a toast, he referred to the men of Irish birth who had won distinction in America, and described the late Dr. J. B. Murphy as the greatest surgeon of his day.

Danger of Pulmonary Tuberculosis in Letting a Furnished House

A case raising a novel point has recently been decided in the courts. A man with his wife, a daughter, aged 15, and a son, aged 12, entered into possession of a furnished house, October 26. On the following day he ascertained that the husband of the woman who let him the house had suffered from pulmonary tuberculosis, and had lived in the house in July and September. The tenant vacated the house, October 28, and brought an action for damages against the landlady for breach of the implied warranty that the house was fit for habitation. The case was a protracted one, and there was a conflict of medical evidence. It came out in the evidence that the plaintiff's wife on hearing that the defendant's husband was in Switzerland asked at the office of the house agent who let the premises whether he was suffering from consumption and was told that he often went to Switzerland on business. As a matter of fact, he died there from the disease.

For the plaintiff, Dr. W. J. Fenton, senior physician to the Brompton Hospital for Consumption, stated that it would not be safe to take a furnished house in which a person suffering from consumption had been lying unless it had been thoroughly disinfected under the supervision of a health officer. In cross examination he admitted that from 50 to 100 per cent. of the people in this country were infected with tuberculosis, opinions differing as to the exact percentage. No case of infection from premises inhabited by infected persons six weeks previously had come under his notice. The plaintiff stated that, when he entered into possession, the house was apparently clean; but there was considerable dust, and the kitchen, scullery and outside premises were dirty.

For the defendant, Dr. S. V. Pearson, superintendent of the Mundesley Sanatorium, a well-known authority on tuberculosis, was called. He stated that the defendant's husband was an inmate of his sanatorium, where he received full instructions with a view to minimizing infection. Tuberculosis was not infectious in the ordinary sense. There must be massive infection—the intaking of bacilli in one or two virulent doses from an acute case. One person in every six died from tuberculosis in this country. In his opinion, the plaintiff ran no risk in the defendant's house. He had never heard of a case of infection from entering a house inhabited six weeks previously by a tuberculous person. He once let his furnished house to a person who died there from tuberculosis, and he and his wife occupied the bedroom almost immediately afterward. He thought that the room was fumigated and possibly it was cleaned in the ordinary domestic sense before they went back into it. There was no recorded case of tuberculous infection from premises left by an infected person.

The defendant stated that when her husband was found to be suffering from consumption he slept on the balcony, the windows of the house were always open, and he was always careful and took all precautions. Before the plaintiff came in, the house was thoroughly cleansed. Dr. Punch, assistant physician at the Brompton Hospital, gave his opinion that, on the evidence there was no danger of infection from the house.

In giving judgment, Mr. Justice McCardie pointed out that in letting a furnished house there was by law an implied warranty of fitness for occupation. Pulmonary consumption in the adult was the result of infection from human beings. The sputum or other ejection might fix on walls, floor, carpets and bedding, and if allowed to dry might be virulent for six months. The house was left in a dusty and dirty condition and was a dangerous harbor for tubercle bacilli. He therefore gave judgment for the plaintiff with $650 damages.

PARIS

(From Our Regular Correspondent)

June 29, 1923.

The Campaign Against Vivisection

At the recent meeting of the municipal council of Paris, Emile Desvaux brought forward the following recommendations: (1) that a law be passed for the strict regulation of vivisection; (2) that no one but doctors of medicine and doctors of science be authorized to perform vivisection, and (3) that an authorized operation may not be performed more than once in the laboratory rooms of the faculty that secured the authorization.

In support of his demands, Desvaux introduced documents relating acts of cruelty committed against animals. The charge was brought that such practices had occurred in certain hospitals and in a certain school of veterinary medicine. As for the hospitals so accused, Dr. Mourier, director of the Assistance publique, has issued a formal denial. One of the former pupils of the veterinary school, M. Roéland, has also filed an energetic protest against the suspicion cast on his alma mater, and has positively asserted that no such experiments were ever performed as "raising the skin of living horses to study the movements of the muscles." M. Roéland also called attention to the fact that a man like Pasteur who was neither a physician nor a doctor of science would not have been able to make his wonderful discoveries if the restriction Desvaux demanded had been in force at the time.

An Address by Professor Rabello

An address by Professor Rabello of Rio de Janeiro before the Société française de prophylaxie sanitaire et morale on the campaign against venereal disease in Brazil has been announced for the immediate future.

Paul Bourget as Psychiatrist

Mme. Dr. Reine H. Louge chose as the subject of her doctoral thesis in medicine, "Paul Bourget as a Psychiatrist." In her study she discusses certain constitutional psychopaths that figure in Bourget's novels. According to Madame Louge, at no other time has mental pathology been reflected in the literature of the imagination as it is today. In support of her opinion she cites numerous examples: The novel by Francis Carco, L'homme traqué, which deals with a remarkable case of mental contagion; Le Phare, by Paul Reboux, which derives its dramatic interest from an attack of mania in a lighthouse keeper; Sa vraie femme, by André Corthis, which treats of an hallucination due to a disturbance of the imagination. The present-day taste for violent emotions leads naturally to the exploitation of the tragic elements of insanity, which presents more horrifying situations than death itself. To this must be added the taste for the new, which is the reason why psychanalysis and freudism have found favor in fiction. Le mangeur de rêves, by Lenormand, is a good example of this.

Madame Louge ascribes more interest to another group of writers who "gladly use the atmosphere of depth and truth that science is able to give to art." Among these, Paul Bourget occupies one of the first places. Paul Bourget has more than once declared that he is an ardent student of psychiatry, and that he considers psychiatry destined to furnish "a principle of enrichment" to the literature of observation, in which he includes history, criticism, the novel and the drama. He studied assiduously and for many years the teachings of the lamented Professor Dupré, to whom he has dedicated one of his books, L'envers du décor, in which he has given, according to his own statement, certain "observations" (in the technical sense that attaches to the term in the hospitals and clinics). "I have missed my calling," he says in one place; "I ought to have been a physician."

However, Madame Louge states that besides the types that have sprung spontaneously into being through the exercise of the powers of observation and the psychiatric genius of the novelist, or that are composed of elements taken from medical literature, but which Bourget has recreated by passing them through his mind and impressing on them the seal of his analysis, there are others that the author has transported bodily from treatises on psychiatary to his novels in order to create an atmosphere of originality and increase the dramatic interest. This is true particularly of his last novel, La Geôle, which is nothing more than a popular description of psychiatry. The characters are well known types such as are described in medical treatises, and are taken over into the novel without having received the personal imprint that an author like Bourget puts on the characters he introduces.

In this connection, it is of interest to note that a campaign has been launched in the Academy of Medicine with a view to proposing the candidacy of Paul Bourget for the first vacancy that occurs in the section of honorary members. The *Journal des praticiens* in a recent editorial favors the idea, presenting, among other arguments, the following: At the Academy of Medicine, problems of a psychologic nature are often brought up, and the question may well be raised whether discussions on race suicide, overstudy in schools, etc., would not profit by the light of considerations in which the moral side would be emphasized. The *Journal des praticiens* holds that a well informed psychologist such as Paul Bourget would serve as a balance wheel and would give added weight to the conclusions adopted.

Sanitary Attachés to Foreign Countries

At one of its recent meetings, the Société de médecine publique discussed the report of Dr. Pierre Even on the creation of sanitary attachés to foreign countries. All the speakers who took part in the discussion declared themselves in favor of the innovation. To be sure, the international congresses of hygiene and the temporary missions on which certain functionaries are sent give some insight into the sanitary organizations of other countries, but they are insufficient to establish the intimate connections that are needed in dealing with important sanitary problems. It was for this reason that the international bureau of public health and the section of hygiene of the League of Nations were created. It was for this reason also that the latter organization has instituted what is termed an "interchange" of functionaries, public health officers of one country being allowed to spend a season in another country to study the various departments of the public health service. This has been accomplished thus far through the financial aid of the Rockefeller Foundation (The Journal, Aug. 5, 1922, p. 485, and Sept. 23, 1922, p. 1061). Dr. Cavaillon, who was recently chosen by the minister of health as a member of the party to visit England, endorsed the plan of creating sanitary attachés and emphasized the meaning of a permanent bond of union such as Dr. Even recommended. Very few French hygienists, Cavaillon stated, are acquainted with the excellent English sanitary equipment, and do not realize that in the ministry of public health in London there are approximately eighty medical hygienists employed and that all the departments are directed by medical technicians. At the close of the discussion, the Société de médecine publique unanimously adopted a motion urging the ministry of health to approve the creation of permanent sanitary attachés to foreign countries.

Death of Dr. André Venot

The death of Dr. André Venot, surgeon to the hospitals of Bordeaux and agrégé professor of surgery in the University of Bordeaux, at the age of 54, is announced.

Activities of the League of French Women

The Union des femmes de France, one of the three societies of which the French Red Cross Society is comprised, recently held its general assembly under the honorary chairmanship of General Gouraud. This league was established in 1882, and today numbers 90,000 members (20,500 of whom are nurses) and 400 committees or groups. From the date of its establishment up to August, 1914, it had expended a total of 5,000,000 francs in rendering aid of various kinds. Its activities during the World War, 1914-1918, may be summed up thus: Creation and administration of 400 hospitals; support, for benevolent work, of 775 physicians and 20,000 nurses, 1,000 of whom worked in crews in the zone of hostilities (exclusive of the administrative personnel). Ten physicians and fifty-five nurses died in the service, the victims of their devotion. The Union des femmes de France distributed, between August, 1914, and the end of the year 1918, 147 million francs, over half of which was furnished through the generosity of the public. The league did not confine itself, however, to lending its aid to the Army Medical Corps. It created also free dispensaries for the wives of men called to the colors, and, beginning with 1917, aid stations were established in the regions evacuated by the opposing forces. These aid stations had expended 1,100,000 francs up to Nov. 11, 1918, the date of the armistice.

Since the cessation of hostilities, the Union des femmes de France has been engaged in the reorganization of instruction courses for the training of additional nurses, and these courses have been extended to include social hygiene and child welfare. Then, again, in order to make itself useful to the army in times of peace as it had done during the war, it has established a special service of *foyers du soldat* (somewhat after the plan of the American Y. M. C. A. huts), where soldiers may find a comfortable lounging room and healthful recreation.

The Seventy-Fifth Anniversary of the Société de Biologie

The Société de biologie has just celebrated its seventy-fifth anniversary. Before an audience comprising French and foreign scientists, Prof. Charles Richet delivered the first address. He referred to the early founders of the society, Rayer, Claude Bernard, Brown-Séquard and Verneuil, and pointed out the value of the movement they inaugurated when they united all investigators in the diverse fields pertaining to vital phenomena. Emphasizing the fact that the great discoveries are always made at the confines of the sciences, he pointed out the vitality of the Société de biologie, which, owing to its many branches, has members in every quarter of the globe. Hereupon, the delegates from the foreign branches and from similar societies in foreign countries came forward to greet the officers of the Société de biologie.

A Monument to Hospital Externs

At the instance of the Association professionnelle des externes et anciens externes des hôpitaux de Paris, a com-

mittee has been formed to secure funds for the erection of a monument to the memory of the hospital externs who lost their lives in the recent great struggle. The monument will be erected under one of the galleries of the court of honor of the Hôtel-Dieu. The plan has received the approval of M. Paul Strauss, minister of public health; and Prof. G. H. Roger, dean of the faculty of medicine of the University of Paris, is the president of the committee. Dr. Mourier, general director of the Assistance publique, is the vice president. Among other members may be mentioned Pierre Marie, E. Sergent and Jeanselme, together with several physicians and surgeons of the hospitals of Paris. Subscriptions may be addressed to M. Bazonge, trésorier, 37, rue de l'Abbé Grégoire, Paris (VIe).

HOLLAND

(From Our Regular Correspondent)

June 30, 1923.

Daylight Saving Time

Urging the need of more light, air and sunshine, the Dutch society for the progress of medicine has petitioned the chamber of the states-general for the adoption of daylight saving time. The point at issue is an amelioration of living conditions rather than a question of economy, and that is the attitude taken by the medical society.

Danger from Plane-Trees

The committee of the league of Holland against tuberculosis has pointed out the danger from plane-trees set out along the squares and avenues of the cities. It seems that plane-trees, which grow exceedingly well in these regions, have on their young leaves a down consisting of sharp-pointed hairs. As the leaves develop, these fine hairs become detached and are carried into the air by the wind. They cause marked troubles of the respiratory organs, particularly in the tuberculous and in persons affected with hay-fever and asthma.

Vaccination Against Smallpox

It is difficult to understand how Holland, a country so progressive in matters pertaining to public health, should remain so backward in its attitude toward vaccination against smallpox. Some years ago, several antivaccinationists of influence, who were not medical men, succeeded in getting legislation passed that hampered the universal application of vaccination, and, up to the present time, it has not been possible to modify the law. There is no absolute obligation of submitting to vaccination. The children attending school are supervised in this regard, but the remainder of the population, which is considerable, escapes all control. If a child receives his early instruction at home, the law does not require that he be vaccinated. The movement to escape vaccination is supported by certain religious sects, which regard compulsory vaccination as an interference with liberty of conscience. The example of England where, every year, deaths occur from smallpox does not suffice to cause them to change their views. Attempts to modify the existing laws by making the obligation of vaccination even less rigorous than it now is are vigorously combated, as can be imagined, by the medical profession. Just at present there is a discussion going on in the chamber of the states-general in regard to modifications of the existing law, and the medical world is up in arms to prevent the launching of any backward movement. With this object in view, the association of school physicians has been holding a convention at Amsterdam, and many speakers have demanded that the present law shall be made more stringent.

Aid Given Russia by Holland

The league for the aid of the needy in Russia, under the supervision of Mr. Mulder, has developed a marked activity in the districts of Kolokolzofka and Pestrofka, where 380 hectares of ground have been plowed and sown. Utilizing the gifts of money, food and clothing received from Holland, several shelters for children have been created. At Pestrofka forty orphans are being taken care of. A center capable of sheltering fifty children will be opened soon at Kaldiban-Samarofka, and will also receive orphans from Kolokolzofka.

Prophylaxis Against Diphtheria

The committee on social hygiene appointed to study the prophylaxis of diphtheria, of which Mr. Buning is the chairman, has sent a detailed report to the Nederlandsche Maatschappij tot Bevordering der Geneeskunst, in which several points merit attention. The committee recommends that every case of this disease be reported, and, furthermore, it demands that a placard be displayed at every house that is contaminated, unless the patient is completely isolated. Complete isolation should be the end sought; in fact, an endeavor should be made to secure permission from the authorities to treat all diphtheria cases in special hospitals. All children living in the same house or apartment with the patient must be excluded from school. No carrier of bacilli should be allowed to reenter school for at least eight weeks after a complete bacteriologic test has proved negative. Disinfection of the whole house seems superfluous; the clothing and bedding of patients should, however, be disinfected. It is also useless to disinfect school rooms. Active immunization against diphtheria deserves to become more general, but it is still in the experimental stage.

Congress of Medical and Natural Sciences

The nineteenth Dutch congress of medical and natural sciences was held recently at Maestricht under the chairmanship of Professor Spronck, who gave the opening address. Mr. Van Iterson, in his address, outlined the work of the miners in Limburg, while Dr. Comandon of Paris spoke of the value of the cinematograph as an instrument of biologic research. Among the sections that presented particular medical interest was that presided over by Professor Noyons and Zwaardemaker, in which the physiologic and pathologic aspects of work were discussed. The main topics were the intoxications of modern industry and workmen's compensation in industrial accidents. The medical section was subdivided into several subsections, in which the various papers presented treated of problems pertaining to general medicine, surgery, obstetrics, veterinary medicine and social medicine. Tieleman of Heerlen presented an interesting study on the psychotechnical examination of workmen in the mines controlled by the state.

Dental Statistics

The statistics of dental services in operation at the end of 1922 has just been published. There were 488 dentists in Holland. Since 1919 the number has been increasing by about twenty a year. There are now seventy women dentists; in 1904 there were only twelve. The number of dentists in the various cities per thousand of population varies greatly. Whereas the Hague has a dentist for every 4,500 inhabitants and Amsterdam one for every 700, Rotterdam has but one for every 14,000 inhabitants.

Comparative Statistics on Influenza

A very comprehensive study by Dr. Sanders on the epidemiology of influenza has just appeared. He compares the dominant facts of this disease during the three most important epidemic periods (1918, 1920 and 1922). The epidemic of 1918 presented especially grave aspects for persons of middle age, most of the victims having been between 20 and 49 years old. During the epidemics of 1920 and 1922, persons past 50 were more affected. In 1920 and 1922 the morbidity

and mortality rates were not appreciably affected by weather conditions, whereas in 1918 one may note close correlation in the curves between high mortality rates and a dry condition of the atmosphere associated with a low temperature.

International Congress of Orthopedics

On the occasion of the twenty-fifth anniversary of its foundation, the Dutch Society of Orthopedics held an international congress, which was opened by its president, Dr. Murk Jansen. The minister of public instruction and the minister of labor were patrons of the congress, which was a great success, to which many foreign guests contributed in no small measure. Lorenz and Spitzy of Vienna, Calot of Paris, Albee of New York, Sir Robert Jones of Liverpool, Biesalski of Berlin and Putti of Bologna, together with the most eminent Dutch orthopedic surgeons, discussed many live and important problems, such as plastic operations on joints, bone transplantation, and the care of disabled or crippled ex-service men.

In his opening address, the president emphasized the importance of orthopedic surgery and pointed out that this science, though now only in the first stages of its development, promises great things for the future. Its field is immense when we recall the large number of congenital deformities that exist at the present time. The figures that he presented were very striking. According to the last census of Holland there were 45,000 persons suffering from some infirmity of an orthopedic nature. Through a more careful investigation it was found that this report took account of only one sixth of the actual number so affected, which brought the number up to more than a quarter of a million. The president utilized the opportunity offered by this international congress to stress Holland's need for more and better orthopedic institutions, and urged his compatriots to make a supreme effort to improve conditions in this regard.

ROUMANIA

(From Our Regular Correspondent)

BUCHAREST, July 4, 1923.

No Operation Can Be Performed Without Obtaining Consent

Recent legal proceedings involving the question of consent for operation have attracted considerable attention in Roumanian medical and lay papers. One medical writer, in a careful review of the subject, states that the physician finds that he must in all cases either keep within the strict scope of the authority expressly given to him, or must so safeguard himself that he can prove by testimony of reliable witnesses that he was asked to perform such an operation as he might find necessary, and that the operation actually performed was, in fact, necessary or desirable. There is some confusion as to the person from whom the consent must be obtained; it is, however, laid down as a general rule that this person is the husband in the case of an operation on the wife, and the parents, guardians or other persons legally responsible in the case of children.

Exploitation of Medical Men by a Private Sick Club

In a large provincial town, Marosvasarhely, a private sick club has attempted to exploit the physicians by underpaying them and by admitting members without regard to their financial status, so that wealthy families, who could easily pay regular medical fees, availed themselves of this form of cheap medical service. The local medical society has adopted a resolution to the effect that on and after July 1, 1923, no member shall accept a post under the sick club, or continue to work at a rate less than the regular charges for services to patients not members of that club; also that no physician shall attend families of the members of this club at a fee lower than the regular rate. Nothing in this resolution is to be construed as prohibiting any member from attending the worthy poor at a less rate, or giving free service to those who are too poor to pay anything. Any violation of this order will be considered unprofessional conduct, and it will be the duty of the censors to expel such members from the society if proof of such conduct is presented to them.

Measles Epidemic in Bessarabia

Since the outbreak of measles three weeks ago, the disease has spread rapidly; its dissemination is held by health officials to be due to negligence on the part of parents in not calling in a physician to see that infected children are properly isolated. The epidemic is most severe in the Bendery district; in that city all school houses have been disinfected, and, in addition, the bureau of public sanitation has disinfected the homes of many children. Last week 156 cases were reported to the district medical officer. The cases are all mild, and recovery takes place almost without complication; no fatal case has yet been reported.

Enteritis in Albania

There is an alarming increase of gastro-intestinal disorders in Albania; thousands of working men are unemployed, and are compelled to live on a semistarvation diet. The sanitary conditions of the bakeries are very unsatisfactory; the bread is bitter and made of inferior flour (maize) in a primitive manner. Another great source of gastro-intestinal disease is the enormous consumption of decayed vegetables, raw or half-cooked.

When Is the Sterilization of Women Justified?

Dr. Panatescu, surgeon at the university clinic at Cluj, states that the performance of an operation which will render a woman sterile for life is never justifiable except to avoid a dangerous pregnancy, and that a condition that justifies abortion may not justify female castration. A contracted pelvis should not be considered an absolute indication for sterilization, since with modern technic cesarean section has become a comparatively safe operation. Chronic nephritis may be considered an indication; psychic and nervous conditions are a doubtful indication: insanity may be curable, and if it is severe, asylum segregation would render sterilization needless. In tuberculosis of the lungs, abortion should be induced if there is hope for a cure; in hopeless cases, sterilization is justifiable to avoid the strain of bearing and nursing a child. The most satisfactory method of operation is to remove the entire tube and close the superior angle of the uterus—the procedure advised by Chrobak of Vienna.

The Cerebrospinal Fluid in Syphilitics

At the recent meeting of the Jassy Medical Union, Dr. Matei detailed fifty-two cases of syphilis and drew attention to the importance of a careful examination of the cerebrospinal fluid in these cases. In every case of tabes, in which the origin is always syphilitic, a marked lymphocytosis is present in the cerebrospinal fluid and is an indication of syphilitic meningitis. A similar meningitis exists in patients with pupillary symptoms (irregularity, anisocoria, Argyll Robertson phenomenon, absence of pupil reflex, optic atrophy). The headache and syphilitic pains may be of meningeal origin even in recent syphilis without marked cutaneous or mucous localizations. All syphilitics who present even slight pains should be examined for lymphocytosis in the spinal fluid, in order to determine whether an intensive form of treatment is necessary. A secondary syphilitic meningitis precedes the nervous disturbances of every nature, and may be considered the initial lesion of important syphilitic nervous diseases, for example, tabes. In fact, a direct relation exists between the two factors. These are the chief conclusions

arrived at by the author, and they are of importance as showing the existence of an early secondary syphilitic meningitis, the forerunner of central syphilitic nervous lesions and of the chronic meningitis which succeeds later.

BERLIN

(From Our Regular Correspondent)

June 23, 1923.

Cooperation in the Fight Against Tuberculosis

The city, the league of health insurance societies, the executive committee of the tuberculosis welfare centers, and the Landesversicherungsanstalt have agreed to combine forces in the campaign against tuberculosis in the Berlin district. The headquarters of the merger are at the office of the Landesversicherungsanstalt. This should bring increased strength to the fight by coordinating the available resources and the pooling of ideas and experiences. An extension of the merger by taking in other organizations is planned.

Psychopathic Aspects of Genius

In opening his address on "Psychopathology in Relation to Genius or Creative Personality" in the Kaiserin Friedrich-Haus, Privatdozent Kretzschmer of Tübingen raised the question: What ground is there for Lombroso's statement that genius is a form of insanity? He referred to several examples of genius to show that genius is often characterized by the milder forms of psychopathic manifestation. He defined genius biologically as a rare and extreme variant of the human species, which presents slight stability. But biologic defects do not necessarily imply a want in a sociological sense, and it is an entirely unjustifiable conception of laymen that they feel constantly called on to defend persons of genius from reflections pointing to psychopathic characteristics. The genius himself is proud of his "demon," his "sacred dementia," or his mania, for he has the feeling that it is the ferment that gives birth to his genius. This conception of genius is proved correct by the biologic aspects of hereditary transmission. Whereas talents may be developed by breeding, genius is not hereditary. However, favorable conditions for the genesis of genius are found in a gifted clan at the moment that degenerative factors first appear. These cause seemingly a relaxation of the hereditary determinants; make possible an outbreak of passion or inward restlessness, and produce the soil from which creative genius can arise. Viewed in this light, the relationship between the psychopathic and the demoniacal, as displayed in geniuses, appears to have an inner basis of fact; in truth, they are sometimes identical. It occurs in connection with the milder transient psychopathic affections, from which highly talented persons suffer; the schizophrenic streak imparts certain marks of genius which disappear with the passing of the affection. In the case of geniuses that have become insane there has been noted just before the breakdown, along with the increased toxic cerebral irritation, an augmentation of genius.

This psychopathic element associated with genius furnishes also an explanation as to why the genius—from the philosophical standpoint, the ideal of human development—has such a hard time adjusting himself to life conditions. The genius is often, as a man, quite unbearable. This is true to an even greater extent of "highly gifted natures," the unstaid, self-tormenting, distracted dispositions, which, though possessing all the marks of genius, are lacking in poise and balance. They lack the inhibitions and control that go with average talent, without which high grade creative development is impossible.

At the close of his address, Kretzschmer displayed a number of photographs of geniuses, in order to demonstrate the correctness of his theory of the relation of physical habitus to psychic endowment. He proved that the majority of story writers and humorists belong to the pyknic habitus (the stocky, corpulent type), whereas the dramatists and lyrists are asthenic or athletic (narrow-chested and slender, or raw-boned and hard-muscled). Among men of learning, talent for the biologic (descriptive) sciences is also found in the pyknic type, whereas the philosophers, and the geniuses in the realm of physics and mathematics (that is, all abstract thinkers), are asthenic or athletic. The first type ranges between the melancholic and the sanguine temperament; the second is choleric, hyperesthetic or cold. Nietzsche and Jacob Böhme, Schiller and Hebbel, Voltaire and Kant, Moses Mendelssohn and Spinoza all showed the typical external characteristics of the schizothymic type, whereas the group comprising Gottfried Keller, Fritz Reuter, Auerbach, Mendel, Pasteur, Virchow, Comte and Robert Koch were out-and-out pyknics.

Decrease in the Population of Small and Medium-Sized Towns

According to a statistical report which appeared in the *Klinische Wochenschrift*, the population of the small and middle-sized towns of Germany is decreasing. The number of cities with more than 100,000 population in 1920 was forty-nine, and in 1922, forty-six. On the other hand, the population of the large cities in 1920 was 14,855,000, and in 1922, 16,553,000. The number of cities with a population of from 50,000 to 100,000 inhabitants has decreased from forty-six to thirty-six; the cities with a population of from 30,000 to 50,000 have decreased from seventy-five to sixty-one, while the number of cities with from 15,000 to 30,000 inhabitants has decreased from 205 to 190. The excess of births over deaths which the smaller and middle-sized towns show as compared to the large cities had likewise decreased in 1920, but is still seven, on the average, as against 3.3 in the large cities. The mortality in the smaller and medium-sized towns is higher than in the large cities, but this is apparently due to the fact that in the smaller towns many strangers die that have been sent there from the rural districts.

A Prize Offering

Geheimrat Professor Denker, otologist at the University of Halle, has established a prize of 1,000,000 marks for the best treatise on otosclerosis that shall be presented during the next two years. The funds for this prize were derived from a gift of 4,000,000 marks that was bestowed on Denker by his friends, collaborators and pupils here and in foreign countries, on the occasion of his sixtieth birthday.

Marriages

LAWRENCE HITES HOOVER to Miss Flossie Webster McFarland, both of Clarksville, Va., at Richmond, June 17.

HUNTER H. MCGUIRE to Mrs. Jane Love Baker, both of Winchester, Va., at Asheville, N. C., June 12.

WILLIAM MORTON KENNEDY, Philadelphia, to Miss Dorothy Hilda Gerecke of Scranton, Pa., June 2.

JAMES EDWIN WOOD, JR., to Miss Emily Mildred Battle, both of Charlottesville, Va., June 28.

JOHN IGNATIUS MCNAMARA to Miss Lila M. Curran, both of Taunton, Mass., June 27.

CHARLES B. FAGER to Miss Miriam Galbraith Cocklin, both of Harrisburg, Pa., June 14.

MACPHERSON CRICHTON to Mrs. Muriel Lynch, both of Washington, D. C., June 9.

ERIC LEONIAL MAJOR to Miss Mattie Elise Row, both of Rosedale, La., recently.

HARRY W. BAILY, Tamaqua, Pa., to Miss Mary Haldeman of Reading, June 21.

ARTHUR L. HOLLAND to Miss Helen Hunter, both of New York, July 10.

Deaths

William Joseph Coogan, Brooklyn; Fordham University School of Medicine, New York, 1916; member of the Medical Society of the State of New York; served in the M. C., U. S. Army, during the World War; on the staffs of St. Mary's and Coney Island hospitals; aged 31; died, July 8, at St. Elizabeth's Hospital, of pneumonia, following an operation for duodenal ulcer.

Daniel Thurber Nelson ✠ Chicago; Medical School of Harvard University, Boston, 1865; professor of physiology and histology, Chicago Medical College, 1866-1879; professor of clinical gynecology, Rush Medical College, 1880-1898; member of the Royal Society of Medicine, London; Civil War veteran; aged 85; died, July 19, of bronchopneumonia.

Miller Bone Hutchins ✠ Atlanta, Ga.; Atlanta Medical College, 1886; emeritus professor of medicine (dermatology) at his alma mater; served in the M. C., U. S. Army, during the Word War, with the rank of captain; formerly on the staffs of the Presbyterian and Wesley Memorial hospitals; aged 59; died, July 6, of cerebral hemorrhage.

Stephen Russell Mallory Kennedy, Pensacola, Fla.; Medical Department of the Tulane University of Louisiana, New Orleans, 1903; member of the Florida Medical Association; U. S. public health officer; served in the M. C., U. S. Army, during the World War; aged 45; died, July 11, of heart disease.

Francis Webster Goss, Sacramento, Calif.; Medical School of Harvard University, Boston, 1869; member of the Medical Society of the State of California, and the Massachusetts Medical Society; aged 81; died, July 10, of chronic valvular disease of the heart and arteriosclerosis.

Henry Shively Pernot, Corvallis, Ore.; Cincinnati (Ohio) College of Medicine and Surgery, 1888; Bellevue Hospital Medical College, New York, 1893; member of the Oregon State Medical Association; formerly city bacteriologist; aged 57; died, July 3, of uremia.

Jacob W. Shope, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1880; member of the Medical Society of the State of Pennsylvania; Civil War veteran; on the staff of the Polyclinic Hospital; aged 78; died, June 14, of cerebral hemorrhage.

Burton Argyle Baird, Rochester, Minn.; State University of Iowa College of Medicine, Iowa City, 1915; member of the Minnesota State Medical Association; served in the M. C., U. S. Army, during the World War; aged 32; died, July 8.

Hugh L. Judge, Wellsburg, W. Va.; Jefferson Medical College of Philadelphia, 1889; member of the West Virginia State Medical Association; also a pharmacist; aged 69; died, June 30, following a long illness.

William Edward Wiatt, East St. Louis, Ill.; St. Louis (Mo.) Medical College, 1879; member of the Illinois State Medical Society; Civil War veteran; aged 78; died, July 3, following a long illness.

Elmer Clayton File, Rochelle, Ill.; Hahnemann Medical College and Hospital, Chicago, 1896; member of the Illinois State Medical Society; aged 51; died suddenly, July 8, of cerebral hemorrhage.

Joseph D. McCann, Monticello, Ind.; Eclectic Medical Institute, Cincinnati, 1888; aged 65; died, July 8, at St. Elizabeth's Hospital, Lafayette, of injuries received in an automobile accident.

Thomas W. Carroll ✠ Clarendon, Texas; University of Texas Department of Medicine, Galveston, 1898; aged 46; died, July 4, at the Adair Hospital, of injuries received in an automobile accident.

Robert Smith Doak, Nashville, Tenn.; Medical Department Vanderbilt University, Nashville, 1894; formerly adjunct professor of ophthalmology at his alma mater; aged 57; died, July 4.

John G. Bickley, Waterloo, Iowa; Jefferson Medical College of Philadelphia, 1877; Chicago (Ill.) Homeopathic Medical College, 1880; aged 68; died, July 5, of acute dilatation of the heart.

Frank J. Woodbury, St. George, Utah; College of Physicians and Surgeons, Baltimore, 1904; formerly physician to the Indian Service Shivwits School, Santa Clara; aged 54; died, July 2.

William Hillman Hosey, Stringer, Miss. (licensed, Mississippi, 1901); member of the Mississippi State Medical Association; aged 43; died suddenly, June 10, of cerebral hemorrhage.

Stephen Driver Brooks ✠ Washington, D. C.; Medical School of Harvard University, Boston, 1882; senior surgeon, U. S. Public Health Service; aged 69; died, July 4, at Los Angeles.

Isaac Francis Stover, Philadelphia; Jefferson Medical College of Philadelphia, 1893; on the staff of the Chestnut Hill Hospital; aged 63; died, July 12, following a long illness.

William T. Bridges, Stonington, Ill.; Missouri Medical College, St. Louis, 1888; member of the Illinois State Medical Society; aged 63; died, July 4, following a long illness.

Cora Lou Pope Ganung, Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1883; formerly on the staff of the City Hospital; aged 61; died, July 5.

Benjamin Aloysius Del Marco, Philadelphia; Jefferson Medical College of Philadelphia, 1921, aged 28; was shot and killed, July 13, by a demented patient.

Annie Mary Reid, Redding Ridge, Conn.; Woman's Medical College of the New York Infirmary for Women and Children, 1877; aged 77; died, July 5.

James Jackson Watkins, Glennville, Ga.; Atlanta (Ga.) Medical College, 1891; member of the Medical Association of Georgia, aged 59; died, June 9.

John Howard Martindale, Los Angeles; New York University Medical College, New York, 1885; aged 64; died, July 4, of cerebral hemorrhage.

Edgar S. Barry ✠ Grand Coteau, La.; Medical College of Louisiana, New Orleans, 1878; aged 69; died, June 30, of carcinoma of the stomach.

Iris Jones Vaughan ✠ Topeka, Ind.; University of Michigan Medical School, Ann Arbor, 1884; aged 60; died, June 26, of cerebral hemorrhage.

Chalmers D. Morgan ✠ Galion, Ohio; Starling Medical College, Columbus, 1896; aged 55; died suddenly, July 5, of cerebral hemorrhage.

John Alvin Alley, Atlanta, Ga.; Atlanta Medical College, 1897; member of the Medical Association of Georgia; aged 51; died, July 3.

Theodore Engle ✠ State Center, Iowa; Missouri Medical College, St. Louis, 1885; aged 67; died, June 29, of carcinoma of the bladder.

William Chambers Schultze, Gresham, Ore.; Bellevue Hospital Medical College, New York, 1867; aged 84; died, June 28, of senility.

Frederick Lawrence Wilson, South Solon, Ohio; Starling Medical College, Columbus, 1898; aged 47; died, July 2, of heart disease.

Edward Branford Gibson, Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1887; aged 78; died, June 29.

Isaac Louis Beatty, Fairview, Ill.; Eclectic Medical Institute, Cincinnati, 1881; aged 67; died, July 2, of pernicious anemia.

Cyrus McOmber Rulison, St. Joseph, Mich.; Albany (N. Y.) Medical College, 1873; aged 76; died, July 6, of senility.

William P. Henrich, East St. Louis, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; aged 53; died, July 4, of diabetes.

William H. Lemon, Lawrence, Kan. (licensed, years of practice); Civil War veteran; aged 90; died, April 29, of senility.

Robert Arnot Quinn, Vicksburg, Miss.; Medical Department of Columbia College, New York, 1870; aged 76; died, June 30.

William Clayton Etherton, Missouri City, Mo.; Jefferson Medical College of Philadelphia, 1890; aged 55; died, May 25.

Thomas E. Craig, Warrensburg, Mo. (licensed, years of practice); aged 88; died, June 15, of senility.

John W. Carney, Edinburg, Ind. (licensed, Indiana, 1901); aged 71; died, July 1, of cerebral hemorrhage.

James W. Lambert, Luthersville, Ga.; Atlanta (Ga.) Medical College, 1871; aged 75; died, June 16.

Charles Pipkin, Jamesport, Mo.; Missouri Medical College, St. Louis, 1870; aged 75; died in April.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

ANOTHER ELECTRONIC DIAGNOSIS AND TREATMENT

"Everything Clears Up"—But the Patient Dies

The following reports on the case of Mr. D., who was treated for carcinoma by C. E. Phelps, M.D., an Abrams disciple of Hartley, Iowa, is of interest because it represents, undoubtedly, what is being duplicated in hundreds, if not thousands, of cases, in various parts of the country.

The clinical report and the general facts in the case were sent to THE JOURNAL by Dr. E. E. Munger of Spencer, Iowa. The pathological report was made by Dr. E. R. LeCount of Chicago. Briefly, it is the story of a man in his seventies suffering from inoperable carcinoma of the stomach with implanted metastases on various other abdominal organs. The man's family physician, Dr. Munger, diagnosed the condition when the patient first came to him. The diagnosis was verified at the Mayo Clinic. Then the man began taking the "Abrams treatment" from a disciple of this cult in a nearby town. The poor fellow, it appears, was led to believe that he was being rapidly cured and was finally told that "everything has cleared up except a trace of colisepsis." A month after he had been so advised he died. Dr. Munger's report follows:

CLINICAL REPORT BY DR. E. E. MUNGER

"E. M. D., laborer, aged 73, first consulted me Jan. 16, 1923, height 5 feet, 7 inches, weight 124 pounds, normal weight about 130. Family history negative except that one brother and one sister died of carcinoma, and one brother of pernicious anemia, at 70, 45, and 75 years of age, respectively. The patient had never used liquor or tobacco; he had felt well until one year ago, when he noticed pain, not severe, in epigastrium after eating; lasted an hour or two. Appetite was good until last November; since then he had been unable to take much nourishment, and any food, especially cold water, caused distress. Constipation, of mild degree, had been present more or less constantly, but a daily evacuation resulted from a small dose of paraffin oil.

"Recumbent, with clothing removed, a mere glance at the abdomen revealed an abnormal contour in left hypochondriac region. Palpation with both hands revealed a large mass in this region which moved freely up and down with respiration. Temperature 98, pulse 72; heart and lungs normal; blood pressure, systolic 120, diastolic 90; haemoglobin 90 per cent.; urinalysis negative; had never vomited; no obstructive symptoms; pain never severe enough to call for anodyne. There was entire absence of the typical cachectic color. Chief complaint was loss of appetite, distress after eating, loss of strength and a general ill feeling. I saw him occasionally until Feb. 15, 1923. There was no marked change in symptoms, except progressive loss of weight, which on the latter date was 119½ pounds.

"He had a feeling that something was 'radically wrong inside' and there was no chance to disagree with his intuition. He was quite depressed, and was not advised of the nature of his trouble. The family was seen, however, and a hopeless prognosis given. They were advised they might be better satisfied if he consulted some one else and the Mayo Clinic was decided upon. On Feb. 3, 1923, he went there, driving with his son in an automobile. He returned from the Mayo Clinic on February 11. Dr. H. Z. Giffin of the Clinic, sent me the following report:

Mr. E. M. D., whom you recently referred to us for examination, was dismissed February 7. Physical examination disclosed a large nodular mass in the left hypochondrium. We were not able to find any distant metastasis either in the chest or the rectal shelf, but the x-ray examination of the stomach indicated advanced involvement and the condition was regarded as inoperable. The Wassermann test was negative. Mr. D. was seen in surgical consultation by Dr. W. J. Mayo. The patient asked concerning x-ray treatment and we told him that there would be no objection to the use of x-ray providing it did not cause too much general debility. Upon his request we gave him a digestant. Mr. D.'s condition was discussed frankly with his son.

"Before long mutual friends advised me that Mr. D. was taking the 'Abrams treatment' and getting well. This was good news, I said, if true. These reports became more numerous and more frequent over a period of several weeks. Some chagrin was felt on my part over failure to effect the cure he very much desired. On April 17, 1923, the daughter of Mr. D. came to the office and asked me to go to the house to see her father. She told me he had been taking the 'Abrams treatment' at a nearby town, but was no longer able to make the trips. The patient still had his always strikingly good color; a glance at the abdomen showed an abnormal contour extending well across the right hypochondriac region; palpation with both hands revealed a mass twice the size it was on February 15; the upper half of abdomen was filled with a hard mass that moved freely with respiration. There were no pathological palpable superficial glands anywhere. His weight was estimated at 90 pounds. He could take no nourishment; a teaspoonful of white of egg, ice cream, or malted milk gave a full feeling, a little nausea, but no severe pain; no vomiting; evacuations from the bowels occurred daily after taking paraffin oil, or enemata. Heart, lungs and kidneys normal; complained of a feeling of complete exhaustion; could scarcely get out of bed and could not stand erect without assistance. He could not understand why he felt so bad, when he had recently been told he was cured, and related the following:

"On February 28, he had consulted Dr. C. E. Phelps, Hartley, Iowa, and said he was told that his was just the kind of a case that the 'Abrams treatment' was good for, and if faith availed anything he certainly had it. He said he had taken forty-two treatments at $5.00 each; that he had gone to Hartley on Mondays and returned on Saturdays. On March 31 he said he was advised by Dr. Phelps that the malignancy was 'killed' and that all he had to do was to go home and 'it would peel out like an orange out of its skin.'

"Without relating the harrowing details of starvation, coupled with the mental disquietude and resentment that resulted from the disappointment which he had suffered, the tragedy came to an end on Monday morning, May 7. A few days before his death he had requested his wife and daughter, much to my surprise, to have me make a postmortem examination and find out the truth about his condition. Accordingly, this was arranged for in the presence of several other Spencer physicians. The abdomen was opened, the esophagus and rectum each tied off, all the abdominal viscera were removed and sent to Dr. E. R. LeCount of Chicago. Before opening the body Dr. C. E. Phelps of Hartley [the Abrams disciple who had treated Mr. D.—ED.] was called up by 'phone and given the opportunity of being present at the autopsy. He did not come."

NECROPSY REPORT BY DR. E. R. LE COUNT

Dr. E. R. LeCount sent in the report which follows describing the condition of the viscera of Mr. D., as found by Mr. Baker and Mr. Bussey in the Pathological Laboratory of Rush Medical College where the examination was made under the direction and supervision of Dr. LeCount.

"There were received the liver, gall-bladder, stomach spleen, pancreas, both kidneys and ureters, the large and small bowel and part of the diaphragm.

"All the serous membranes had lost their lustre. The external surface of the stomach was light gray and generally covered with flattened nodules, most profuse toward the pyloric end, 1 mm. to 15 mm. in diameter and the same color as the stomach wall. The gastro-hepatic ligament was thickened, stiff and covered with similar nodules. The stomach wall was hard and thick. The pyloric wall had an average thickness of 2 cm., the fundus, 1 cm., and the cardia, 5 mm. The lining of the stomach was soft, irregular, gelatinous and easily scraped away. The cavity of the stomach was 15 cm. long, with a cardiac diameter of 2 cm. and a pyloric diameter of 5 gm.

"The great omentum, full of tumor nodules, extended down 3 cm. to 6 cm. and was 1.5 cm. thick, the same brown color as the stomach, hard, stiff, of about the same consistency as the stomach wall and very rough. Close to the greater curvature it was 3 cm. thick. It was also strikingly translucent, a characteristic of all the nodules described elsewhere.

"The gall-bladder, normally pendant, was green and partially filled with green fluid, a part of which had stained the nearby tissues. The external surface of the liver was finely wrinkled, brownish gray, soft and had sharp edges. On the superior surface of the right lobe there were two small, light brown tumor nodules 3 mm. in diameter easily shelled out from the surface.

"The coronary and falciform ligaments were stiff, thicker than normal and diffusely covered by disseminated flat nodules, the largest 15 mm. in diameter. The attached diaphragm was a portion 10 cm. by 15 cm., the upper surface quite smooth, the lower roughened by a number of light brown nodules 2 mm. to 5 mm. in diameter and projecting about 1 mm. The spleen had a wrinkled slate-colored external surface; was about normal size and, grossly, unchanged outside. Surfaces made by cutting were purplish red and had an excess of stroma.

"The right kidney weighed 100 g. Surfaces made by cutting did not bulge; the cortex was brown and had an average depth of 6 mm.; the cortical striations were easily seen. There was no gross change in the medulla. There was a small amount of peripelvic fat. The lining of the pelvis was light gray. The left kidney was similar to the right in all respects except for the presence of a small cyst at the upper pole, 1 cm. in diameter. Running into the upper pole of each kidney was an accessory artery. The capsules of these kidneys stripped readily and left a smooth surface.

"The mesentery of the entire bowel was thickened, opaque and diffusely covered with nodules similar to those described; some flat, others pedunculated and they were most numerous in the ileocecal region and at the distal edge of the mesentery. The foramen epiploicum was closed by adhesions. The ascending colon had fibrous bands on its free surface near the hepatic flexura. The transverse colon was so closely adherent to the under surface of the tumor mass in the great omentum that the mesocolon was apparently missing. Some appendices epiploicae bore several of the small nodules like those described. The hepatic arteries, portal vein, the hepatic, cystic and common ducts, the pancreas, pancreatic duct and duodenum, and the attached 10.5 cm. of the inferior cava caudad to the liver were all, grossly, unchanged except for adhesions, a part of the generalized fibrous peritonitis. There were no enlarged lymph glands anywhere.

The abdominal organs removed en masse. *a*, liver; *b*, gall-bladder; *c*, the stomach greatly reduced in size, propped open, almost vertical and with a very thick wall; *d*, the great omentum and mesogastrium full of tumor; *e*, nodular metastases implanted on the peritoneum.

Histologic Diagnosis.—Pseudomucinous carcinoma.

Anatomic Diagnosis.—Primary pseudomucinous carcinoma of the stomach with secondary implantation metastases on the surface of the liver, the mesentery, the bowel, the diaphragm and ligaments of the liver; fibrous peritonitis; retention cyst of the left kidney; accessory arteries of the kidneys.

SOME "ELECTRONIC DIAGNOSES" OF DR. PHLEPS

In view of the clinical findings of Dr. Munger and the Mayo Clinic and the necropsy report of Dr. LeCount, given above, the "Electronic Diagnoses" made by Dr. C. E. Phelps of Hartley, Iowa, are worthy of attention. In passing, it may be said that Dr. Phelps, according to the records, was born in 1881 and was graduated in 1907 by the Hahnemann Medical College and Hospital of Philadelphia. Apparently, until taking up the Abrams business, Dr. Phelps specialized in eye, ear, nose and throat work. In 1909 he seems to have been the superintendent of an advertising "cancer cure" outfit, operated by one Perry Nichols and at that time located at Hot Springs, S. D.

Mr. D., the patient of the present report, received his first "electronic diagnosis" at the hands of Dr. Phelps March 1. At this time Dr. Phelps gave a written "report," of which the following is a copy:

Carcinoma Reactions.—6 ohms + pyloric end of stomach with irritation in gall bladder and slight in colon.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—Slight.
Colisepsis.—Positive.
Acquired Diminished Resistance. — 42 ohms. Circulation, nervous system, digestive kidney and bladder.
Streptococcus Infection.—Positive. 7 ohms. Ethmoid frontal sinus.
Staphylococcus.—None.
Malaria.—None
Influenza.—Strong.

On March 13 another "diagnosis" was made and the "report" issued by Dr. Phelps reads:

Carcinoma Reactions.—3 ohms.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—None.
Colisepsis.—Positive.
Acquired Diminished Resistance.—24 ohms.
Streptococcus Infection.—Positive.
Staphylococcus.—None.
Malaria.—None.
Influenza.—None.

Ten days later, or March 23, Mr. D. was reexamined by Dr. Phelps "according to electronic reactions of Abrams" and the following "report" issued:

Carcinoma Reactions.—Negative.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—None.
Colisepsis.— +
Acquired Diminished Resistance.—10 ohms.
Streptococcus Infection.—None.
Staphylococcus.—None.
Malaria.—None.
Influenza.—None.

On April 2, Mr. D. again underwent a "diagnostic" examination and received from Dr. Phelps this "report":

Carcinoma Reactions.—Negative.
Tuberculosis.—None.
Sarcoma Reactions.—None.
Neisserian.—Negative.
Colisepsis.—Trace.
Acquired Diminished Resistance.—Negative.
Streptococcus Infection.—None.
Staphylococcus.—None.
Malaria.—None.
Influenza.—None.

With this last "report" Dr. Phelps sent a letter to Mr. D. stating in part:

"Everything is cleared up except a trace of colisepsis. We will see how you get along. We might have to give you a few treatments for that later."

In the same letter Dr. Phelps expressed the hope that Mr. D. was gaining in strength and added "I am very busy. Keeps me going from morning until night." Before leaving this part of the narrative, attention should be called to the phrase "Acquired or Congenital Diminished Resistance" used by the exponents of the Abrams cult. This is a euphemistic expression now used by the Abramsites in place of the older phrase "Acquired or Congenital Syphilis." As readers of THE JOURNAL have already been advised, the indiscriminate charges made by the followers of the Abrams cult that most of the victims that come to them are sufferers from acquired or congenital syphilis has led, in at least some instances, to complications. Hence the substitution of the phrase "Diminished Resistance" for "Syphilis."

Observation and Experimentation.—Claude Bernard said that observation is a passive science, experimentation an active science.—Garrison.

Correspondence

"TREATMENT OF MIGRAINE WITH PEPTONE"

To the Editor:—Perhaps you will kindly permit me to make a correction in the interesting paper of Drs. Miller and Raulston (THE JOURNAL, June 30), and also to add one or two remarks on the peptone immunization treatment.

The preparation of peptone I have recommended is not Armour's peptonum siccum, as stated in the article, but Armour's peptone No. 2, which differs very considerably in that it contains a fair quantity of primary proteoses, a feature which is absent in the peptonum siccum. According to analyses made some years ago for me by Professor Plimmer, the peptone No. 2 contains one part of primary proteose to seven parts of deuteroproteose. This content of primary proteose renders the preparation more effective, and the larger size of the molecule would tend to induce a reaction much more readily, entailing greater care in the dosage. This particular peptone (No. 2) was that used first by me in 1917 as a nonspecific immunizing agent in asthma (*Brit. M. J.* **1**:580 [May 5] 1917). I then used it hypodermically, but soon afterward, constructed the formula for intravenous use (*Brit. M. J.* **3**:49 [July 20] 1918), which is practically identical with that given by Drs. Miller and Raulston on page 1895. In 1920 (*Brit. M. J.* **1**:567 [April 24] 1920), I applied the same formula to migraine and other conditions, and have found no occasion to alter it.

The statement made in the same issue of THE JOURNAL (p. 1910) by the Council on Pharmacy and Chemistry, to the effect that commercial peptones are largely of uncertain composition, and that no adequate tests and standards have been developed whereby the uniformity of a given brand of peptone may be controlled, cannot be too strongly emphasized and brought to general notice. We require a standardized product. Some commercial peptones, such as Witte's, contain histamin or some other very toxic substance, and are often dangerous to use. Certain experiences of my own in this connection were published in 1922 (*Brit. M. J.* **1**:835 [May 27] 1922).

A. G. AULD, London, England.

To the Editor:—The article by Miller and Raulston on the "Treatment of Migraine with Peptone" (THE JOURNAL, June 30, p. 1894) interested me very much. The note of warning by the Council on Pharmacy and Chemistry is of vast importance. Miller and Raulston say, "Migraine . . . is distinctly hereditary." Surely a physician must have a high regard for medication and a low regard for fundamental biologic processes as expressed in hereditary characters when he suggests that a hereditary character can be removed by a few intravenous injections of a preparation of peptone. The phenomena of migraine do the bearer no permanent harm. In fact, it is absurd to recommend treatments for hereditary characters. Migraine is hereditary, and is transmitted between generations in exact compliance with the two laws of Mendel. Heredity is a subdivision of physiology and not a subdivision of pathology. A person who receives from his ancestors an untoward hereditary character is normal for his type, and any attempt to rid him of the character will prove fruitless or do harm. Any method that would completely eradicate a hereditary character would simultaneously prove that the condition was not hereditary. If a condition which is hereditary could be concealed completely in an individual, it would reappear in his progeny. Knowledge of hereditary characters in man should be given to medical students in the department of physiology. The management of characters that are hereditary belongs to a subdivision of preventive medicine whereby knowledge of the value of proper mating can be disseminated to all people. One hundred years of selective mating that is properly controlled would rid the world of migraine.

J. ARTHUR BUCHANAN, M.D., Pueblo, Colo.

[The letter was referred to Dr. J. L. Miller, who replies:]

To the Editor:—Hay-fever and asthma are both hereditary, just as migraine. They are now definitely recognized as sensitization diseases, and are relieved by desensitizing measures. The fact that the migraine patient following a severe infection, or frequently during pregnancy, is entirely free from attacks shows that, whatever may be the nature of the trouble, there are certain conditions which develop that give the patient temporary relief. In this respect there is a close analogy between migraine and asthma. The only attempt of the treatment is to desensitize the individual exactly as we do in asthma or hay-fever, and there is no more reason to criticize the treatment of migraine by this means than there would be to criticize the treatment of asthma or hay-fever.

JOSEPH L. MILLER, M.D., Chicago.

"NUXATED IRON" NOT ALWAYS "NUX"-LESS

To the Editor:—In looking over THE JOURNAL of July 14, I find a little item about "Nuxated Iron" in which the statement is made that the nostrum contains very little iron and a negligible quantity of "nux." A few days ago I was called to see a boy about 2½ years old who had eaten thirty-two "Nuxated Iron" tablets. He died of strychnin poisoning about two hours after he had taken the tablets and before I reached him (the child lived 20 miles from my office and it was some time after he got the stuff that I was called). I hardly believe that the parents of this child could be convinced that the quantity of nux in those particular tablets was negligible.

E. O. BARKER, M.D., Guthrie, Okla.

[COMMENT.—When THE JOURNAL, in its recent item, stated that analysis had shown "Nuxated Iron" to contain a negligible amount of "nux," it was referring to an analysis made in the A. M. A. Chemical Laboratory some time ago. What the preparation has in it at present we do not know. The composition of "patent medicines" is notoriously variable. It is conceivable that one batch of "Nuxated Iron" may contain mere traces of nux vomica and its alkaloids, while another may have a dangerously high content of these substances. The case reported by Dr. Barker shows the need of a federal law requiring a poison label on all medicines sold for self-medication that contain any of the more dangerous drugs.—ED.].

LOCAL ANESTHESIA BY QUININ SALTS AND THE COMMITTEE REPORT

To the Editor:—A communication by me with this title was published in THE JOURNAL, Sept. 18, 1920, and the September, 1920, *Laryngoscope*, in which I gave my experience with the quinin salts, and expressed the opinion that the committee of the Section on Laryngology, Otology and Rhinology on local anesthetics had not quite done justice to quinin as a local anesthetic. I had lately used quinin hydrochlorid, 1 grain in 2 drams of distilled water, with entire satisfaction. Shortly afterward, a patient had a slight slough of the wound, and I reduced the strength of solution to ¾ grain in 2 drams, since which time I have had no case of sloughing, and the anesthesia has been satisfactory. I then began the practice of using this strength of quinin hydrochlorid for the right tonsil and 0.2 per cent. of cocain for the left (5 c.c.) to secure comparative results. In all cases either 20 per cent. cocain or cocain mud was first applied to each tonsil, but in

small amount. In each one of the few cases I have been privileged to operate, the patient has expressed himself as better satisfied with the operation of the right than of the left. The healing after quinin has been at least as good as after cocain, and, the first twenty-four hours, freer from pain.

A little more time (ten or fifteen minutes) is required for anesthesia, and it is well to incise the mucous membrane under the anesthesia from the cocain application and before edema has followed the injection of the quinin.

EDWARD J. BROWN, M.D., Minneapolis.

ANESTHETIZING THE TRIGEMINAL NERVE

To the Editor:—In THE JOURNAL, July 14, p. 112, Dr. S. L. Silverman describes a method of anesthetizing the superior maxillary division of the trigeminal nerve by an injection made through the greater palatine canal. I would call attention to an article by Dr. Juan Ubaldo Carrea, in *El Odontólogo,* Buenos Aires, 1921, Nos. 16 and 17, entitled "Anestesia troncular del nervio maxilar superior por el conducto palatino posterior," describing the identical procedure with the exception of a few minor details. It appears to me that the method has its greatest field of usefulness in reaching the sphenopalatine ganglion in cases of nasal ganglion neurosis as described by Sluder, affording, as it does, a more direct route to the sphenomaxillary fossa than any other method.

ROBERT H. IVY, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ROENTGENIZATION OF THE SPLEEN IN PULMONARY TUBERCULOSIS

To the Editor:—Will you kindly oblige me by the following information: 1. What are the details of the technic of the Manoukhin treatment of pulmonary tuberculosis by roentgen-ray irradiation of the spleen? 2. What are the details of the blood examinations to be conducted during such treatment? M.D.

ANSWER.—1. The human spleen, according to Manoukhin (*Lancet* **1**:685 [April 2] 1921), is irradiated by a dose of roentgen rays equal to 1 h. as measured by the Sabouraud and Noiré radiometer, using the Holzknecht scale. In the case of weak patients a smaller dose is given. The rays are filtered through 1 mm. of aluminum. Manoukhin obtains this dose during five minutes at 1 ma. 5-7 a. with roentgen rays whose hardness is 8 on Benoist's radiochromometer and 10 on Wehnelt's criptometer (but the hardness of the rays and duration of irradiation are varied in relation to the gravity of the case), and with the anticathode at a distance of 25 cm. from the body. As the liver and the spleen secrete antagonistic ferments, it is very important that the roentgen rays should not fall on the liver while irradiating the spleen. Therefore, the irradiation of the spleen is done exclusively from the front or back, but never from the side; and, to avoid irradiating the liver when the spleen is being irradiated from in front, the right boundary of the tube (8 cm. diameter), which does not let the roentgen rays pass through its sides, must be to the left of the left mammary line, and during roentgenization from the back it must be to the left of the left scapular line. In tuberculosis of the lungs, irradiation is performed not oftener than once a week. In Petrograd, the treatment of tuberculosis of the lungs of the first stage requires from eight to ten sittings; of the second stage, from twelve to fifteen, and of the third stage two series of from twelve to fifteen each, with an interval between of two or three months. In general, Manoukhin never gives more than fifteen sittings at one stretch.

2. Manoukhin (*Arch. d. mal. du cœur,* June, 1912, p. 390) tests the leukocytolytic capacity of the patient's blood serum. He mixes the serum to be examined with normal human blood. A leukocyte count is made of this mixture, whereupon it is heated over a water bath for twenty-four hours. Then a second leukocyte count is taken. The difference between the two counts gives the number of leukocytes destroyed. The relation of this figure to the first count gives the leukocytolytic index of the serum examined. (Manoukhin regards leukocytolysis as a defense reaction, and the purpose of roentgenization is to increase the fragility of the leukocytes. His experiments on leukocytolysis and all researches on the fragility of leukocytes show that the diseased organism often defends itself against toxinfection by a hyperleukocytosis. At a certain time these leukocytes become fragile, are then broken up, and by releasing the ferments with which they are impregnated, contribute to the defense of the organism.) After each roentgenization of the spleen, the study of the blood must be renewed (Mauriac, Pierre: Réflexions à propos du traitement de la tuberculose pulmonaire par l'irradiation de la rate, *J. de méd. de Bordeaux* **94**:231 [April 25] 1922).

ETHYL CHLORID AS A GENERAL ANESTHETIC

To the Editor:—Please give me the facts, as they are known to date, concerning the comparative dangers of ethyl chlorid with other anesthetics, when used as a general anesthetic. It is my practice to use it to produce unconsciousness, and then to switch to ether. I do this because it is quicker and has not the objectionable odor that ether has.

ARTHUR J. KEMP, M.D., Miami, Fla.

ANSWER.—The unreliability of statistics is evidenced by the fact that the published mortality rates from ethyl chlorid anesthesia vary from 1 in 15,000, which is also the mortality rate of ether anesthesia, to about 1 in 6,000. From these statistics, therefore, one might judge that ethyl chlorid stands between ether and chloroform; but it is probably closer to the latter, which gives a mortality of about 1 in 3,500. Ethyl chlorid, however, is used for minor anesthesia (brief anesthetization), so that it is unfair to compare it with the major anesthetics used for prolonged operations. The fair comparison for ethyl chlorid is with nitrous oxid, the accepted mortality rate from which is about 1 death in 1,000,000 anesthesias. Hence, whether for induction of anesthesia or for minor anesthesia, ethyl chlorid is somewhere between 200 and 66 times more dangerous than nitrous oxid, and therefore much inferior to the latter, excepting from the standpoint of convenience and portability of apparatus. It is, on the other hand, somewhat safer than chloroform for the induction of anesthesia, though also less convenient.

The essential danger from ethyl chlorid lies in the extraordinary suddenness of the death, which may occur within half a minute from the beginning of the inhalation. The danger signs are such as may be easily overlooked by any except the most experienced anesthetist.

SKIN TESTS IN HAY-FEVER

To the Editor:—The skin tests in a case of fall hay-fever gave a marked reaction to ragweed, goldenrod and sunflower. Scheppegrell's book exonerates goldenrod and sunflower as causes of fall hay-fever, because their pollens are not wind borne. Under the circumstances, should treatment with goldenrod and sunflower be given together with the ragweed, or should the first two be omitted in spite of the well marked skin reactions? Please omit name.

——— M.D., New Jersey.

ANSWER.—The skin reaction in patients suffering from the fall type of hay-fever will be positive if made with any of the pollens of the 10,000 species of flowers which constitute the large family of *Compositae.* The same skin reaction will also be obtained with the pollen of flowers which, belonging to this family, are indigenous to South America or South Africa and are not found in the United States. In other words, immunologically speaking, it is probably a group reaction due to a specific chemical nucleus common to the pollen of the whole family of *Compositae,* possibly protein in nature.

Virtually only those members of *Compositae* have any part in the production of fall hay-fever that are fertilized by the wind: therefore chiefly the ragweeds *(Ambrosiaceae)* and wormworts *(Artemisiaceae).* The ripe pollen of the wild sunflower, goldenrod, blackeyed susan, daisy and aster—flowers which grow abundantly on the sides of most of our country roads—might be carried a few feet on a hot windy day and thus play a certain small part in producing hay-fever (e. g., in motorists); but this is certainly a very insignificant factor in the causation of fall hay-fever as compared to the rôle of the truly anemophilous *Compositae.*

The treatment with ragweed pollen extract is, therefore, sufficient in most cases to desensitize the patients to fall hay-fever.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, September 4. Sec., Dr. Harry C. De Vighne, Juneau.

PHILIPPINE ISLANDS: Manila, August 14.. Sec., Mr. José V. Gloria, 400 Asuncion, Manila.

THE RELATION OF MEDICAL EDUCATION TO THE MEDICAL PLANT

G. CANBY ROBINSON, M.D.

Dean-Elect and Professor of Medicine-Elect, Vanderbilt University Medical Department

NASHVILLE, TENN.

Medical education is conducted in different countries in various ways, and theories of education express themselves in various forms of plants. On the other hand, the plants available for medical education have been perhaps strong factors in determining educational policies. It is not always easy to determine whether the educational principles have dominated the types and arrangements of buildings, or whether the educational principles have been dominated by the facilities in which medical education is of necessity conducted. Doubtless, in some countries the educational policy has been the dominant factor, while, in others, material facilities seem to have influenced strongly educational methods. Without attempting a decision of this question, it is certain that a striking contrast is seen between the educational policies and plants of Germany and those of England. In Germany, the medical schools have consisted of a series of institutes, each being a concrete unit of the university. In England, the medical schools, at least in London, have been developed about hospitals, have existed as independent units, and have, generally speaking, a very loose university connection. In Germany, medical education has been conducted as a university function in the true sense of the word. The English medical schools are largely vocational in their methods and spirit. They attack in a very direct way the development of the practitioner of medicine.

In the United States until recent times, medical education did not generally have the advantage of being conducted as an integral part either of true universities or of large general hospitals. Our schools were for the most part conducted in rather meager laboratories, and in hospitals seldom fully controlled by the medical faculties. Only in rare instances prior to twenty-five years ago did a medical faculty have an opportunity to express freely any true educational policy in its plant, and in this country even today the available plant dominates the educational methods of many of our medical schools.

We have, however, at present a rapidly increasing number of schools in which the opportunity is afforded to construct new plants or thoroughly remodel old ones along lines which express the modern American conception of medical education. One such opportunity has been given in the recent endowment of Vanderbilt University for its medical school by the General Education Board and the Carnegie Foundation. Through these benefactors, a sum of eight million dollars for medical education has been made available for Vanderbilt University, with which the university proposes to erect a hospital, laboratories, a nurses' home and a power plant, and to provide for their endowment.

EDUCATIONAL FEATURES EXPRESSED IN THE BUILDING PLAN

It is my purpose here to point out some of the features of the plant that has been planned which reflect the educational policies which for the present guide the development of the new medical school.

In the first place, the new buildings have been located directly on the main campus of the university, which assures the school of its place as an integral part of the university and its close contact with the departments of science underlying the medical sciences. The decision of this location was difficult, especially as it involved the abandonment of valuable buildings and land now occupied by the Vanderbilt Medical School, situated about two miles across the city of Nashville from the university.

Another problem of educational policy has been the question of bringing the laboratories and the hospitals of the school into the closest possible contact. In order to accomplish this, it was decided to connect the laboratories and hospital so that in reality they constitute one building. The laboratories form three sides of a court facing north and opening toward the main campus of the university, while the hospital forms a similar group opening toward the south. These two groups are joined by the laboratories of the clinical departments, arranged in such a way that the type of work conducted in each one will be carried on in close proximity to the laboratory most closely allied to it. Thus, the laboratory of clinical bacteriology adjoins the main laboratory of bacteriology, that of surgery adjoins anatomy, and that of clinical chemistry and physiology adjoins those of biologic chemistry, pharmacology and physiology. By such assignment of space it is hoped that the barrier between the laboratory and the clinical departments will be eliminated, and that the influence of the fundamental sciences will be felt constantly by the clinical staff and by the students throughout their entire course, so that the knowledge and training gained in the laboratories will be carried forward into the practice of medicine. This seems to be an essential factor in solving the much discussed problem of the so-called "water tight compartment" departments, and in bringing about successfully the much desired correlation between departments. It is possible, however, that this close linking of the laboratories and the clinics will produce a tendency which may need to be resisted. It may tend to have the undesirable influence of distracting both students and staff from engaging in the less spectacular and less practical activities of the laboratories, and to place too near them the allurements of clinical medicine. This is a matter that needs to be recognized and taken into strict account, especially when there is a tendency to push forward in the curriculum clinical demonstrations. The desire to impress on the student the practical application of his early medical studies may result in leading him astray, diverting his attention and giving him clinical notions before he is ready or capable of receiving them. There is much more to be said for carrying forward the laboratories into the clinics than there is for carrying the clinics into the laboratories, and it is hoped that a plan which will effect the former may not unduly produce the latter condition.

Another educational feature expressed in the building plan of the Vanderbilt University school is the position of the library and museum. The library occupies a central position on the first floor, almost analogous to the hub of a wheel, and no provision for departmental libraries has been made. Stack room on the main floor for approximately thirty-six thousand volumes is provided, with additional room for about fourteen thousand volumes immediately below. The reading room adjoining the stack room will accommodate about seventy readers, and two small studies for intensive literary work are provided. The museum is placed opposite the main entrance of the laboratories. It is connected by a passageway with the library, so that the cataloguing, arranging and issuing of books and specimens may be done by the same

staff. The prominent position of the museum should encourage its use by students of all classes, and should develop an attitude toward it so well exemplified by the English schools, where much knowledge is acquired in the museum both with and without teachers.

Special emphasis has also been placed on the relation of the outpatient department to the wards. The medical outpatient department is directly under the medical wards, and the surgical outpatient department is directly under the surgical wards. This arrangement has been made with the idea of breaking down the distinction of the out and in services, from the point of view both of the staff and of the students. Another feature of the plan which should tend to bring the two services together is a common record room. This feature will allow the ready establishment of the unit record system, and it is planned that each patient will have but a single record, whether he is treated in various departments or whether he is at times admitted to the hospital and at other times treated as an outpatient.

The admitting office of the hospital adjoins the main entrance hall of the dispensary, in which are rooms for the social service department, the staff of which will be readily accessible to patients being admitted to the hospital or to patients attending the outpatient department. A prominent place is given to the social service department, not only because of the great humanitarian value of a properly conducted hospital social service, but also with the belief that it is a valuable asset in medical education. The early impressions gained by students are of great importance in determining their attitude toward future patients, toward the public at large and toward the profession. It is essential, therefore, that the medical student should be surrounded by influences which will emphasize the individual problems of patients in relation to society and to their environment, and which will tend to cultivate in them those desirable qualities of character and fine emotions which have always been looked for in the physician, and which are not always to be found. The influence of an intelligent, competent hospital social service is unquestionably very beneficial from this point of view. Under one portion of the outpatient department have been placed small departments of special therapeutics. A plant for hydrotherapy and massage, a small gymnasium for therapeutic exercises, and a shop for occupational therapy have been provided. These will allow students to see and study some of the more general therapeutic measures, which have not been generally recognized as part of a medical training.

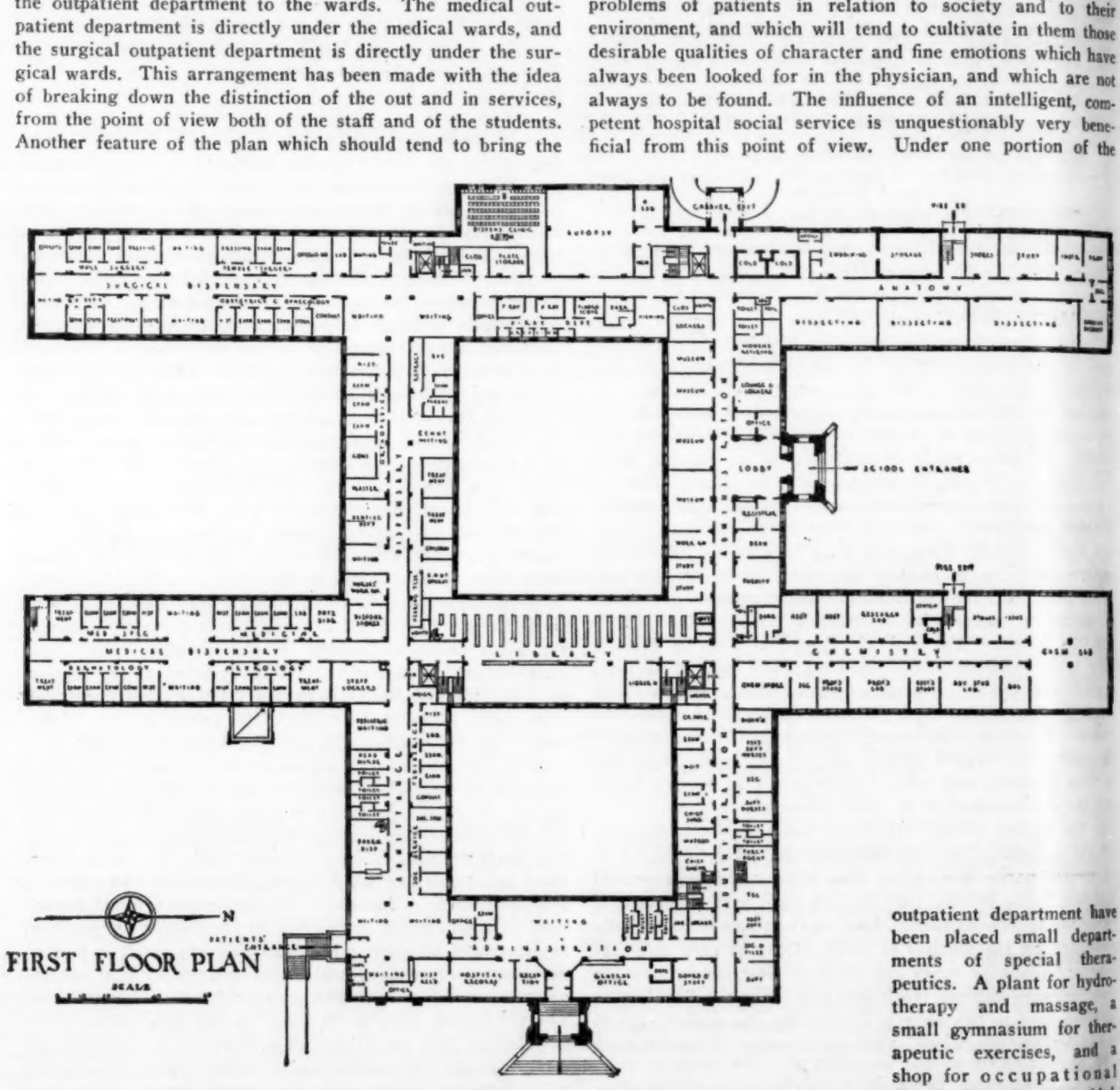

Fig. 1.—First floor plan.

The hospital wards represent a departure from the large wards in general use in this country. A ward unit is composed of thirty beds, but these are so distributed that not more than four patients are in a single space. The main part of the ward, which leads to a closed porch, contains sixteen beds, but this is in turn subdivided by two partitions and a wide corridor. The beds are to be placed lengthwise with the wards, so that the patients do not face the windows. The ward office, linen, bath and utility rooms are between the main portion of the ward and smaller rooms containing fourteen beds. It is believed that this type of ward, new in

this country, but successfully used in the university hospital in Copenhagen, will allow improved facilities for teaching, a better distribution of patients, and a more comfortable hospital.

In order to provide facilities for students, two rooms are provided for their use just outside each ward, one a small laboratory measuring 22 by 17 feet, and another adjoining room half as large to be used as a study and conference room for the students serving as clerks in the ward. These rooms are not contained in the ward unit, so that students may work in them at hours when their presence in the wards is not desirable. In general, the principle of giving the students facilities so that they may be as far as possible be accommodated. Other hospital facilities in Nashville now being used by the school will also be continued.

Finally, an important relation between the educational policy of the school and the physical plant is the number of students which will be admitted. A limit of fifty students in each class has been set, and the facilities of the school have been planned accordingly. All lecture rooms, locker facilities and laboratories have been planned to care for this number. Further endowment would be necessary to provide for a larger number, and extensive additions to the plant would be required. It is perhaps fortunate that a limit is placed on the number of students by definite physical limitations, as it is essential to have comparatively small numbers in order to carry out many of our present-day American educational ideals. Whether these ideals are true or false perhaps the future will show.

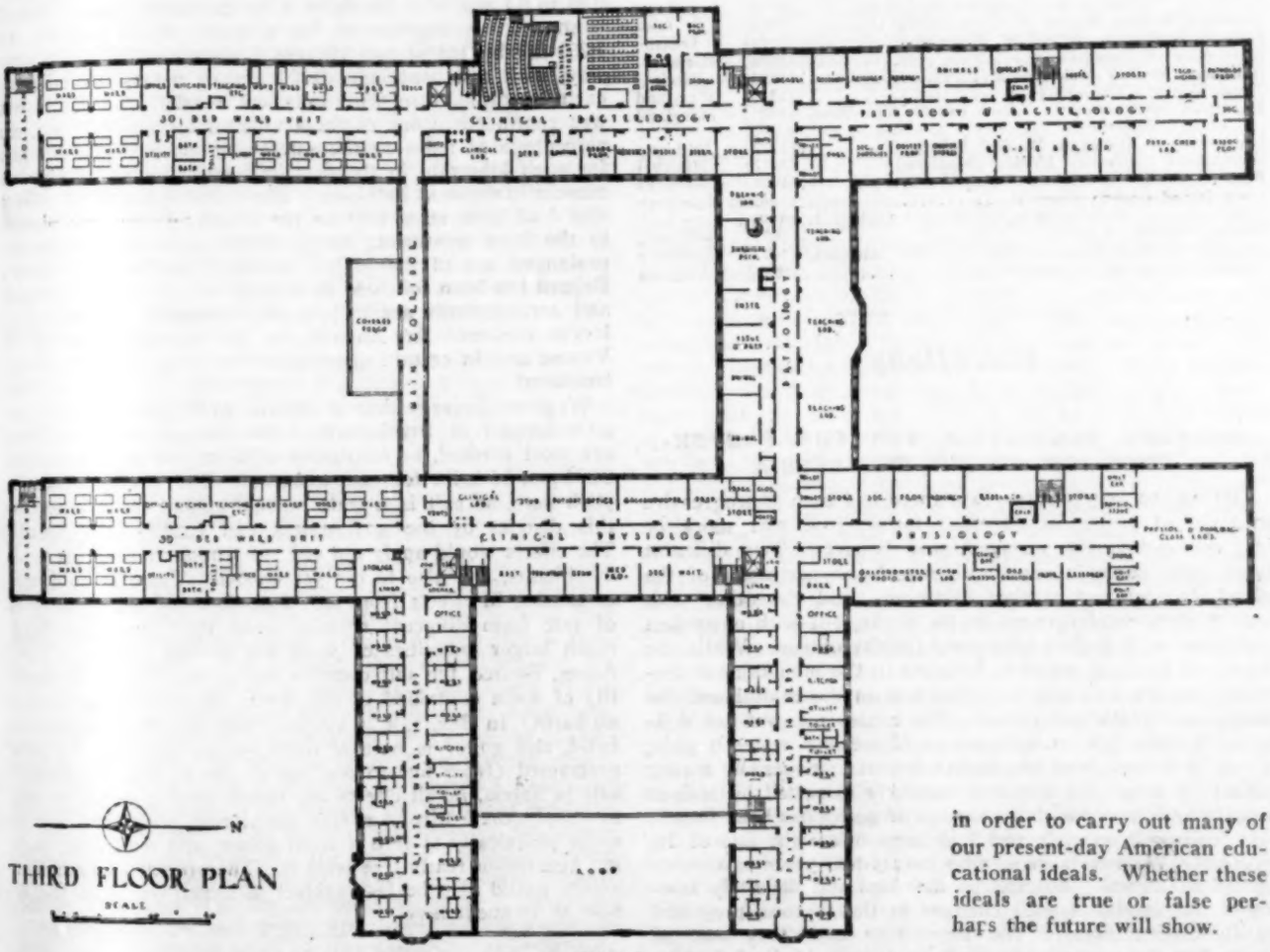

Fig. 2.—Third floor plan.

incorporated in the work of the hospital has been carried out.

No large operating amphitheater has been provided, but the operating rooms have been made large enough so that groups of students can attend operations, thus expressing another policy of medical education now generally regarded as sound.

The hospital will contain approximately 170 beds, twenty-seven of which are arranged for patients paying professional fees. Sixteen beds are devoted to contagious cases. This is a small number of beds for educational purposes, but it constitutes a hospital as large as can be well maintained with the funds available for this purpose. The hospital wards are constructed so that an additional story can be added, which would provide two more wards, one for pediatrics over the medical wards and one for obstetrics over the surgical wards. Ground for further extension of both hospital and laboratories toward the west is available, so that a plant three times the size of the one now planned can

Iowa March Examination

Dr. Rodney P. Fagen, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, March 8-10, 1923. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
St. Louis University School of Medicine		(1922)	85.4
New York University Medical College		(1888)	76
University and Bellevue Hospital Medical College		(1903)	84
University of Kazan, Russia		(1916)*	84.1

* Graduation not verified.

Porto Rico April Examination

Dr. Jorge del Toro, secretary, Board of Medical Examiners of Porto Rico, reports the written and practical examination held at San Juan, April 3, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per

cent. was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University	(1917)	75, (1922)	82.3
Tufts College Medical School		(1920)	75
School of Medicine of Caracas, Venezuela		(1893)*	76.6

* Graduation not verified.

Ohio April Meeting

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports that 18 candidates were licensed by reciprocity at the meeting held at Columbus, April 3, 1923. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons of Chicago		(1905)	Iowa
Woman's Medical School of Northwestern Univ.		(1892)	Iowa
Indiana University School of Medicine		(1913)	Indiana
University of Louisville		(1916)	Mississippi
Baltimore Medical College		(1903)	W. Virginia
Johns Hopkins University		(1918)	Maryland
University of Maryland	(1920) New York, (1921) Virginia	(1921)	Maryland
University of Michigan Medical School		(1921)	Michigan
Washington University Medical Department		(1917)	Missouri
John A. Creighton Medical College		(1920)	Nebraska
Long Island College Hospital		(1905)	New York
University and Bellevue Hospital Medical College		(1902)	New York
Medical College of Ohio		(1885)	Nebraska
Meharry Medical College	(1898) Missouri,	(1917)	Kentucky
Medical College of Virginia		(1916)	Virginia

Miscellany

WAGNER'S SUGGESTION FOR THE PREVENTION OF GOITER IN AUSTRIA

During the last twenty years there has been a progressive increase of goiter in Austria; formerly it was more or less confined to the purely Alpine districts. Two different types were common: one with massive hypertrophy of the gland, but without marked symptoms, and the other with only moderate enlargement of the organ, but with outspoken symptoms of hypothyroidism or hyperthyroidism. While the former is likely to be more frequent in the mountainous districts, the latter is now very frequent in the capital and the cities, mostly lowland places. The cause is as yet not definitely known, but many authors blame the water supply, which is derived from the Alpine districts. Especially among school children, who are now regularly inspected by trained school physicians, a high percentage of goiter has been found; this reaches 28 in girls and 9 in boys, below the age of 16. Professor Wagner-Jaurreg, who twenty-five years ago investigated the "cretin" districts of the Alps and definitely associated this condition with changes in the thyroid, presented an interesting paper, "The Prevention and Treatment of Goiter," at the recent meeting of the Vienna Medical Society. He pointed out that the old theory that places the responsibility for goiter on the drinking water supply has been abandoned in Switzerland, by Gummer, Hunziker and Bayard. These authors explain goiter, at least the endemic form, as a deficiency disease caused by the deficiency of iodin in the food.

This theory was offered in 1849 by Prevost, and numerous facts can be brought forward both for and against it. From 1911 to 1913, a special goiter commission was established in Switzerland, and found definitely that by adding a minimal quantity of iodin to the food or water, rats remained free from goiter under conditions that produced goiter in other rats not so treated. But large doses of iodin are not without danger. Professor Wagner mentioned the experiments of Roux in Lausanne, and of Klinges and others, who obtained excellent results in children from the inhalation of iodin vapor or the administration of iodin tablets. In America, Marine in 1917 gave for ten days 0.2 gm. sodium iodid to school children in districts in which goiter was endemic. This was repeated twice a year; the results were excellent. He was prompted by his observations of trout in large ponds where the otherwise frequent appearance of goiter ceased if minimal quantities of iodin were added to the water.

These methods, however, have the serious objections that a cumbrous organization is required for the distribution of the iodin; lack of cooperation is frequent, and only a small percentage of the population, and even this part only for a short time, is placed under the influence of the remedy. A much better method was employed by Bayard in Zermalt, Switzerland. He first gave to five goitrous families, for five months, common salt mixed with a small amount of iodin (from 5 to 20 mg. for each kilogram of salt) for daily use. Even the cattle received only such salt. The results were excellent: All goiters disappeared. As the daily intake of salt amounts to about 10 gm. for each person, each received from 0.05 to 0.1 mg. of iodin daily, a "homeopathic" dose. Bayard continued his experiments on a larger scale, and fed the 1,200 inhabitants of two villages for six months in the same way, with salt containing 0.004 gm. of potassium iodid for each kilogram, also with excellent results. The treatment was continued in one of these villages for another year, the percentage of iodin in the salt being increased to 0.01 gm. for each kilogram in the first half year, and to double that amount in the next half year. The result was that all goiters that had been refractory to the smaller percentage yielded to the later treatment; no ill effects were noted from the prolonged use of the higher dosage. The example set by Bayard has been followed in several districts of Switzerland, and arrangements are in progress to extend the method to larger cantons. In Austria, similar conditions, chiefly in Vienna and in certain districts of the Alps, call for similar treatment.

Wagner suggests that a certain well defined goiter district located in Styria, where the ravages of the disease are most marked, be constantly supplied with salt containing 0.004 gm. of iodin for each kilogram. This is easy to accomplish here, as salt is a state monopoly, and the salt sold to this district by the government can readily be "treated." The effects would apply not only to school children but to all inhabitants, and also to the yet unborn. There is no danger of causing ill effects from too large doses of iodin. Samples of salt from different sources show that, in some places, much larger quantities of iodin are present. Thus, in Bordeaux, France, the salt contains about three times the quantity of iodin contained in the Swiss experiment, and causes no harm. In Bex, salt is obtained that is rich in magnesium iodid, and goiter is notable there for its absence. If, after protracted (from five to ten years) use of this "medicated" salt in Styria, no ill effects are noted, then it would be well to supply the entire Austrian population with such salt in order practically to free it from goiter, and render the coming generation really free from it. The present generation of adults would also be less subject to hyperthyroidism that is now so frequent here.

THE CENTENNIAL OF VAGINAL HYSTERECTOMY IN EUROPE

On Jan. 28, 1822, Dr. J. N. Sauter of Constance performed the first vaginal hysterectomy in France for a large cancerous tumor which filled the vagina in a woman, aged 50, who for three months had been subject to hemorrhages. The patient recovered but died four months later from an acute intestinal affection. Necropsy showed no trace of the tumor, and only adhesion of the intestine marked the place which had been occupied by the uterus. Sauter saw the possibility of hysterectomy, but his technic, without hemostasis, was too faulty for him to be considered as the father of the method. "Vaginal hysterectomy was his offspring, but it was not a viable child." Great improvements were required before it could become a regular anatomic operation, and these were realized by Professor Récamier of Paris, a charter member of the French Académie de médecine. On July 26, 1829, he made the first successful hysterectomy in France, at the Hôtel-Dieu, in presence of Marjolin, Breschet and Blandin. It is odd that curettage, colpotomy and hysterectomy were the work of French clinicians, not surgeons.

Book Notices

FOUNDATIONS OF BIOLOGY. By Lorande Loss Woodruff, Professor of Biology in Yale University. Cloth. Price, $3.50. Pp. 276, with 211 illustrations. New York: The Macmillan Company, 1922.

The appearance of this book should meet the approval of those entrusted with the teaching of general courses in biology. It is thoroughly modern in tone and in treatment of material, illustrating the general revolt against teaching from "types." A teacher of botany might be justified in taking exception to the title Foundations of Biology, since the botanic side does not appear to receive adequate attention. This does not in any way detract from the value of the book to the zoologist, since the discussion of problems in animal life cannot but be strengthened by judicious reference to similar problems in the plant world. Chapters deserving special mention are those devoted to the origin of the individual, the heritage of the individual, the adaptation of organisms and the origin of species. In his last chapter, on epochs in biologic history, the author has departed from the stereotyped historical summary and has written an historical sketch which contains sufficient of human interest to make it enjoyable. The book is well illustrated. The appendix contains a synoptic classification of plants and animals, a bibliography and a glossary. The bibliography should commend itself to the busy teacher, since it contains an adequate list of "easily available works in English which are suitable for reference and collateral reading"; but it seems difficult to justify the presence of a glossary of almost thirty pages. A glossary should be unnecessary if a book is well indexed and if the author has been careful to explain sufficiently new terms as they are introduced in the text. Good scientific dictionaries are usually accessible.

LEHRBUCH DER AUGENHEILKUNDE. Von Dr. Paul Römer, Direktor der Universitäts-Augenklinik zu Bonn. Fourth edition. Paper. Pp. 500, with 338 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This edition has been condensed from the former two volumes to one, to great advantage. From the slight incoordination that exists in various chapters, it can be seen that the work is a compilation of the lectures delivered by Römer, and later amplified. The colored illustrations are for the most part excellent, and it is unfortunate that many of the text illustrations, reproduced from photographs, have been printed so dark that the desired details cannot be distinguished. Otherwise the printing is good, as are the proofreading and the general make-up. A practical point that adds to the usefulness of the book is the marginal headings of various paragraphs. For many of the diseases, the differential diagnosis and treatment are given in a schematic form that is both practical and good. There are some decided opinions expressed that are of great interest to American ophthalmologists. Römer states that "every granular disease of the conjunctiva that leads to scar formation must be considered a trachoma," and he denies etiologic import to the Prowaczek inclusion bodies. It is also of interest to note that he still mentions pneumococcus serum in the treatment of serpiginous ulcer of the cornea; but he no longer emphasizes it as formerly. In this connection, he questions the efficiency of ethylhydrocuprein. To the American ophthalmologic mind, the greatest drawback to the book is the scanty attention paid to the etiologic factors of uveal disease of all sorts. Focal infection plays little or no part, while absorption of intestinal toxins is not even mentioned. One chapter that stands out by reason of its excellence is that on injuries to the eye and orbit. In this, the author states emphatically that sympathetic ophthalmia is undoubtedly a mycotic disease, due to an as yet undiscovered organism, and that it cannot possibly be an anaphylaxis as claimed by the Elschnig school. But he makes this as a bald statement without supporting proof. The chapter on glaucoma is not as complete as it might be. In the beginning of the chapter, he discredits the Leber theory of aqueous formation and flow, but seems to be unwilling to accept any of the modern substitute theories. In contradistinction to many of the German ophthalmologists, the Elliott trephining occupies a high position in his armamentarium of glaucoma operations. Taken by and large, it is a good textbook for students in whose curriculum ophthalmology plays a greater part than it does in the American medical schools; but it is far from sufficient as a textbook for the graduate student. By reason of the good illustrations and the many expressions of personal opinion, however, it forms a rather valuable addition to the library of the well-read ophthalmologist.

EUGENICAL STERILIZATION IN THE UNITED STATES. By Harry Hamilton Laughlin, D.Sc., Assistant Director of the Eugenics Record Office, Carnegie Institution of Washington. Cloth. Pp. 502, with 14 illustrations. Chicago: Psychopathic Laboratory of the Municipal Court, 1922.

In his capacity as assistant director of the eugenics record office, Carnegie Institution of Washington, and eugenics associate of the psychopathic laboratory of the municipal court of Chicago, Dr. Laughlin presents a detailed and complete exposition of the history and present status of eugenic sterilization in the United States. Incidentally, he discusses the determination of eugenic deficiency and the anatomic, physiologic, mental, surgical and legal aspects of sterilization. The discussion culminates in the draft of a standard or model law. The book contains everything necessary for an intelligent understanding of sterilization from the biologic, sociological and legal standpoints as far as is now practicable. Compulsory sterilization, according to the author, is justifiable for the biologic betterment of the race, but its use as a punitive measure is of doubtful expediency, and may be legally impossible in the United States because of constitutional restraints. In defining the class or classes subject to compulsory sterilization, lines should follow biologic landmarks, and not court records of convictions under man-made laws; the latter are of value only as they are evidence of transmissible constitutional inferiority. All persons, whether or not inmates of jails or asylums, should be liable to sterilization "who, because of degenerate or defective qualities, are potential parents of socially inadequate offspring." Whether a person shall or shall not be compulsory sterilized is properly determinable only after due notice and hearing by a court, with a jury if the party interested so demands; determination by executive officers or by special boards, even though made up of technically trained persons, the author does not approve. It is along these lines that the author has drafted his standard or model law, which, however, in the present state of public enlightenment and opinion on compulsory eugenic sterilization will probably be looked on as idealistic rather than practical. Advocates of compulsory eugenic sterilization must, however, have in mind an ideal if they would attain their objects; for it is certain that circumstances, including political expediency, will reduce to a practical measure any ideal law they may propose. Dr. Laughlin's book should be studied by every one seriously undertaking to prepare and advocate legislation on compulsory eugenic sterilization. Indeed, because of the thoroughness and system with which he has presented the facts and the law on which his model bill is based, it may well be studied by any one undertaking to draft model legislation of any kind. Unfortunately, the niceties of typographic form and arrangement, through which so much may be accomplished to aid in the presentation of serious exposition and argumentation of this kind, have been slighted. Otherwise, it might well be questioned whether the book is the more valuable as an exposition of eugenic sterilization or as a pattern to be studied by persons interested in the development and formulation of model laws.

DISEASES OF THE HEART. By John Cowan, D.Sc., M.D., F.R.F.P.S., Physician to the Royal Infirmary, Glasgow, and W. T. Ritchie, O.B.E., M.D., F.R.C.P.E., Physician to the Ministry of Pensions Hospital, Edinburgh. With a chapter on the Ocular Manifestations of Arterial Disease, by Arthur J Ballantyne, M.D., F.R.F.P.S., Lecturer on Ophthalmology, University of Glasgow. Second edition. Cloth. Price, $10, net. Pp. 605, with 321 illustrations. New York: Longmans, Green & Co., 1922.

The favorable comment that this volume received a few years ago when it was reviewed in THE JOURNAL may be repeated concerning this larger and improved edition, in which Ritchie appears as co-author. It is well written. Good judgment is shown in the proportion of space and emphasis accorded various topics. Questions of anatomy, physiology

and pathology are given due consideration when they are essential to a clear understanding of the nature and clinical manifestations of a disease. The electrocardiograph, polygraph and roentgen ray are described as fully as necessary to show their proper value as aids to diagnosis. Treatment is not neglected. We know of no better book in English for the student or practitioner who desires a concise yet reasonably comprehensive, up-to-date textbook on heart disease.

DICTIONNAIRE DES TERMES TECHNIQUES DE MÉDECINE. Contenant: Les étymologies grecques et latines, les noms des maladies, des opérations chirurgicales et obstétricales, des symptômes cliniques, des lésions anatomiques, les termes de laboratoire, etc. Par les Docteurs M. Garnier, Professeur agrégé, Médecin des Hopitaux, et V. Delamare, Ancien Interne des Hopitaux. Préface de G. H. Roger, Doyen de la Faculté de Médecine. Eighth edition. Paper. Price, 16 francs. Pp. 640. Paris: A. Maloine et Fils, 1923.

This small volume is all that it pretends to be: a concise, well edited dictionary of the technical terms of medicine, including Greek and Latin etymologies, names of diseases, surgical and obstetric operations, clinical symptoms, anatomic lesions and laboratory terms. It does not contain many general scientific terms, names of chemicals and various preparations and instruments, terms of anatomy, biology and physiology, nor are there many biographic references. One good feature is that it frequently gives the name of the physician who brought a word or expression into use; often also the date of the first usage. It may possibly be said to have unduly emphasized pathology to the exclusion of other branches of medicine. The book is intended primarily for French medical students, and is only occasionally of value to the English-speaking physician, since he has practically all the pathologic terms, in almost the identical form, in his English medical dictionary. What the English-speaking physician requires is a dictionary that includes biologic, anatomic and physiologic terms (including two and three word expressions) and the ordinary words of the language which have at times a peculiar medical significance, such as: *cancussion, collocation, redressement* and *débridement*. The book is well printed on a good quality of paper, and the price is reasonable.

THE HEART IN MODERN PRACTICE: DIAGNOSIS AND TREATMENT. By William Duncan Reid, A.B., M.D., Chief of Heart Clinic at the Boston Dispensary. Cloth. Price, $5. Pp. 352, with 32 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The aim of the author has been to incorporate in this single volume the best of the more recent knowledge, e. g., that pertaining to the abnormal cardiac rhythms, together with the older knowledge that experience has shown to be of real worth. He has succeeded fairly well, perhaps as well as could be expected in so few pages. Often, however, the clinical features of a disease are given very scant consideration, so that the description is too much like that of a quiz compend. This undue brevity really mars the usefulness of the book for either the practitioner or the college-trained senior student of a present-day medical school. They are looking for something a little more complete as to details and are not satisfied with the bare recital of a few salient facts concerning the symptoms of a disease, its etiology, pathology or treatment. That the author is a careful clinical observer is revealed by his discussion of physical examination. The relative values of signs as manifested on auscultation and percussion are set forth with unusual clearness and judicial discrimination. We are not sure that the illustrative case reports that take up the last sixty pages add to the real value of the book.

A CLINICAL TREATISE ON DIABETES MELLITUS. By Marcel Labbé, M.D., Professor of General Pathology at the Faculty of Medicine of Paris. Translated, revised, and edited by Charles Greene Cumston, M.D., Lecturer at the Faculty of Medicine of the University of Geneva. Cloth. Price, $5. Pp. 382. New York: William Wood & Co., 1922.

This is the work of a clinician and student of clinical medicine, not that of a profound student of the purer sciences, such as physics and chemistry, or of the science of metabolism that is based on calorimetry. The author is a clinician and a shrewd observer. He has seen many diabetic patients and knows their symptoms. He writes of this phase of diabetes much in accordance with the traditions of the French school of clinical writers. For this reason the book recommends itself to the American student of diabetes who has not inherited so much of purely clinical lore. The American student need not look for advanced knowledge of organic or physical chemistry, or calorimetry or biochemical methods, or for concepts or interpretation couched in the language of modern chemical science. He will not find them if he does. But if he reads the book he will find, for example, a chapter on diabetes xanthochromia, a subject not mentioned in American writings on diabetes, and he will find a medical handling of the subject of diabetes by a physician with a general knowledge of other diseases, who sees in diabetes a disease rather than a mere anomaly of the metabolism. The book is in a number of respects comparable with Naunyn's Der Diabetes mellitus and Lepine's Diabète sucré, in that each aspires to be a balanced treatise. It contains some matter that will not be found in either of those works. Nevertheless, in spite of its greater modernity, it is not equal in depth to Lepine, or as worthy of study as Der Diabetes mellitus.

STUDIES IN THE STANDARDIZATION OF THE WASSERMANN REACTION, WITH THE DESCRIPTION OF A NEW METHOD. By John A. Kolmer, Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania, Assisted by C. P. Brown, T. Matsunani, A. M. Flick, A. Rule, M. E. Trist and E. Yagle. Cloth. Philadelphia: Research Institute of Cutaneous Medicine.

The introductory chapter in this book is an address by Dr. John A. Kolmer on "The Nature of the Complement Fixation Reaction in Syphilis in Relation to the Standardization of Technic," which was read before the New York Academy of Medicine, Dec. 20, 1921, and republished from the *American Journal of the Medical Sciences*. The following thirty-two chapters represent the work done by Kolmer and his associates at the Research Institute of Cutaneous Medicine, Philadelphia, in developing the Kolmer modification of the Wassermann test. These were all published in the *American Journal of Syphilis* between 1919 and 1922, inclusive. This book is therefore a collection of reprints. THE JOURNAL has already commented editorially on the Kolmer technic (Sept. 23, 1922, p. 1051), and published an article by Schamberg and Greenbaum (March 24, 1923, p. 836), who concluded, after considerable clinical experience, that the Kolmer test was an invaluable advance in the serologic study of syphilis.

THE UNADJUSTED GIRL, WITH CASES AND STANDPOINT FOR BEHAVIOR ANALYSIS. By William I. Thomas. Foreword by Mrs. W. F. Dummer. Cloth. Price, $3 net. Pp. 261. Boston: Little, Brown & Company, 1923.

This volume is the fourth of a series on criminal science, authorized by the American Institute of Criminal Law and Criminology. It is composed chiefly of case reports of the lives of incorrigible girls, with an analysis from the point of view of the psychologist. In this instance, the point of view leans strongly to the Freudian belief that sex repression and transmutation are the main features of etiology and prophylaxis. This point of view is particularly emphasized by the chapter headings: The Wishes, The Regulation of Wishes, The Individualization of Behavior, The Demoralization of the Girls, Social Agencies and Social Influence. The volume is definitely of the type that considers the unadjusted girl as a patient to be cured rather than as a criminal. It is an interesting and serious contribution to social science.

TASCHENBUCH DER PRAKTISCHEN UNTERSUCHUNGSMETHODEN DER KÖRPERFLÜSSIGKEITEN BEI NERVEN- UND GEISTESKRANKHEITEN. Von Privatdozent Dr. V. Kafka, Leiter der serologischen Abteilung der psychiatrischen Universitätsklinik und Staatskrankenanstalt Friedrichsberg in Hamburg. Second edition. Paper. Price, 50 cents. Pp. 105, with 29 illustrations. Berlin: Julius Springer, 1922.

This convenient little pocket manual gives practical details of the technic and interpretation of various laboratory tests applied to the body fluids in mental and nervous diseases. The technic is given in admirably concise and exact form, and should prove of great value to laboratory workers. The formulas for the various reagents and the successive steps to be followed in each procedure are given with precision. In the last chapter, the body fluid pictures in different mental diseases are formulated, and the diagnostic value of the different tests is indicated. The methods, on the whole, are up to date, though it is notable that the author still empha-

sizes the Abderhalden tests in the diagnosis of dementia praecox, and omits an account of the methods of chemical examination of the blood to which, in this country, so much attention is being directed. Dr. Kafka's work in the clinical laboratory study of mental diseases is well known, and this pocket guide embodies the results of a wide experience.

PROCEEDINGS OF THE THIRTY-SEVENTH ANNUAL MEETING OF THE CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA. Cloth. 1922.

The deliberations of the health officials of thirty-two states, and of a number of distinguished guests, at the annual meeting of the conference in May, 1922, are printed in this volume of 150 pages. It contains much information not elsewhere accessible, which is of substantial value to all interested in public health administration. Unfortunately, the facts and opinions it embodies are not readily available in detail because of inadequate indexing. Tables are given showing practice in the several states with respect to public health nursing, laboratory activities, and communicable diseases. The report discloses an interesting difference of opinion among state health officials as to the advisability of charging on the health department the duty of enforcing antinarcotic laws.

Medicolegal

Evidence Required to Sustain Indictment

(People v. Lucas (N. Y.), 198 N. Y. Supp. 846)

The Supreme Court of New York, Special Term, Monroe County, in dismissing, on the minutes of the grand jury, an indictment which charged the defendant with practicing medicine without a license, says that he was not indicted by competent and relevant evidence, such as would warrant his conviction by a trial jury. The charge against him required the district attorney to satisfy the grand jury by legal evidence beyond a reasonable doubt that the defendant had held himself out "as being able to diagnose, treat, operate, or prescribe for some [any] human disease, pain, injury, deformity or physical condition," and had offered or undertaken "by some [any] means or method, to diagnose, treat, operate or prescribe for some [any] human disease, pain, injury, deformity or physical condition." There was no claim that the defendant treated anybody for any such conditions as the statute describes, which differentiated this case at the outset from every other case to which the court's attention was called, so that the only question was whether or not he held himself out as being able to treat such conditions and offered to do so. But there was no legal evidence before the grand jury that he held himself out as being able to treat the complaining witness or anybody else. This element of the crime should appear by substantial evidence beyond a reasonable doubt, and should not be left to inference from incompetent or contradictory evidence, such as the minutes of the grand jury revealed in this case.

The purpose of the statute is to reach those not excepted, who by advertisement or by a course of conduct are holding themselves out as physicians or surgeons, or as being able to treat human ailments. It is not necessary that they should call themselves physicians or surgeons, but, not being excepted, they must clearly represent themselves as being able to diagnose, treat, operate or prescribe by some "means or method" for some form of "human disease, pain, injury, deformity or physical condition." There are exceptions in the statute in favor of those who practice healing as a part of the religious tenets of a church; but even this exception does not apply when such persons supplement prayer with drugs and medical prescriptions. Treatment by diet was formerly sanctioned as not practicing medicine, and so was treatment by rubbing, kneading and pressure; and under the present language of the statute it has been held that physical exercise to remedy diseases and physical conditions are not prohibited, nor the removal of superfluous hair from the face by an electric needle; but the use of autosuggestion and dieting, agencies which the defendant was charged with offering to employ, and which are not among the subjects on which a physician is required to be examined, unless practiced in good faith as a part of the religious tenets of a church, seem not to be exempted, although during the recent visit of the humble pharmacist from Nancy it was tacitly conceded to be lawful to practice autosuggestion in public without a physician's license. The language of the statute covers every "means or method" held out or offered, but there must be some limitations other than those enumerated in the statute, or there are many pharmacists, anatomists, chemists, physical culturists and roentgen-ray photographers, and the whole brood of "patent medicine" venders, who claim to cure all the ills that flesh is heir to, who are practicing medicine and are subject to indictment.

A single instance may be sufficient to establish a holding out, when there is an actual treatment, for in such a case the treatment itself would make out a prima facie case of representation. But the defendant was not to be indicted because he was a "colored fellow," or may have had trouble in other places. He was to be judged here by what he did here, and not by what he might have done, or would be likely to do, or by reason of the color of his skin, or because of his general reputation, or by reason of any suggestion of his that he might be willing at some time to employ "means and methods" of treatment which were never employed, and by which no one was treated or injured, so far as the evidence showed. When there is no treatment, and no immediate offer to treat, but only a suggestion to come around at some other time, when a contract would be made to do something which might, when offered, not constitute a violation of the statute, the case is barren of the representations required by law.

Malpractice in Treatment of Dislocation—Witness Member of Association—"Proper" Treatment

(Hoover v. McCormick (Ky.), 247 S. W. R. 718)

The Court of Appeals of Kentucky, in affirming a judgment for $4,000 damages in favor of plaintiff McCormick, says that he sustained a simple backward dislocation of his right elbow joint. He called defendant Hoover, who arrived within an hour and a quarter, to take charge of the case. An anesthetic was administered, and, it was thought, reduction was made. No roentgenogram was made at the instance of the defendant, but the plaintiff had one made about a month after the injury, which showed that the dislocation was not reduced. An anesthetic was administered, and three physicians with a nurse manipulated the arm and resorted to and applied the well-recognized and known methods usually employed to produce reduction by that method, but without success. About two weeks later, the plaintiff had an operation performed by another physician, which left but little motion in the joint, and partially paralyzed fingers, although the operation was not at all criticized.

The defendant contended that he was not negligent in failing properly to diagnose the case, or in failing to reduce the dislocation on his first visit, on account of the swollen condition, but that such was the condition was contradicted, and necessarily formed an issue for the determination of the jury. As is usual in such cases, there was a contrariety of testimony on all of the direct as well as collateral issues, but one could not read the record without being forced to the conclusion that the defendant was negligent in at least the one particular of not sooner making a roentgenogram of the elbow so as to enable him better to treat it thereafter. To say the least of it, the contradictions in the testimony on the crucial points clearly made a case for the determination of the jury.

It appeared that both the defendant and one of his witnesses were members of the state medical association, and the witness was asked, on cross-examination, whether the association did not have an arrangement for protecting its members against suits for malpractice. He answered that it did not have just what the question implied, but that it did have a defense branch which was obligated to investigate malpractice suits, and when they were not based on proper foundation, assistance was given so far as legal advice was concerned. It was developed that the defendant and the wit-

ness were members of the same organization, and each necessarily contributed to the fund inquired about, the existence as well as the purpose of which was admitted. It is therefore extremely probable that the testimony was competent for the purpose of showing bias or interest which might possibly affect the credibility of his testimony, especially in view of the fact that other testimony of the witness showed his interest in the case. But, whether so or not, and admitting for the purposes of this opinion that it was technically an error to admit it, this court is then convinced that it was not sufficiently prejudicial to authorize a reversal of the judgment on that error alone, since the jury was afterward told that the defendant obtained no assistance from that source, but was contesting the action with only his own resources.

The contention that the trial court, in instructing the jury, erred in using the word "proper" as applied to the treatment administered was clearly untenable. Various authorities, in defining the physician's duty, contain that element, which does not mean that the treatment shall actually be proper in all respects, but only that it shall be proper as measured by the defined degree of skill and care required in such cases, which is that usually and ordinarily possessed by others engaged in the same profession in the same locality, and which locality is not the place where the services are rendered, but the place where the defendant is stationed and located, and where he engages in the practice of his profession.

No Damages for Disfigurement Alone

(J. J. Newman Lumber Co. v. Norris (Miss.), 94 So. R. 881)

The Supreme Court of Mississippi, Division A, reverses a judgment for $17,500 damages which was rendered in favor of plaintiff Norris, and remands the case for a new trial on the question of damages, because the jury was instructed that, in assessing his damages, it should take into consideration, not only the physical and mental pain suffered by him, as well as any permanent injury, but, in addition, the scars and disfigurements of his person. The court holds that, in an action for personal injuries, an instruction which authorizes the jury in assessing damages to take into consideration, not only the plaintiff's physical and mental suffering and permanent injury, but in addition any disfigurement of his person, is erroneous since as it authorizes the jury to consider any disfigurement of the plaintiff's person which may continue after the termination of his physical pain and suffering, because it thereby authorizes the jury to award damages for mental anguish alone, unaccompanied by physical suffering.

Burden of Proof After Burn in Roentgen-Ray Treatment

(Rost v. Roberts (Wis.), 192 N. W. R. 38)

The Supreme Court of Wisconsin, in affirming a judgment in favor of the defendant, says that the plaintiff was afflicted with pustular acne, for which the defendant, a physician, advised roentgen-ray treatments, which were administered, July 2, 5, 9 and 11, 1920. About a week after the last treatment, an area of about 144 square inches on the plaintiff's back began to show indications of a roentgen-ray burn, which burn was not healed until well along in the summer of 1921. The plaintiff brought this action to recover damages; and the defendant counterclaimed for the value of his services in giving such treatments, and in treating the burn resulting therefrom, in the sum of $431. A further counterclaim was made for services in treating a gunshot wound. A general verdict was rendered in favor of the defendant for $560, which was said to be the full amount claimed for services in treating the plaintiff.

The jury was instructed that it might consider the fact that the plaintiff was burned as evidence of the defendant's negligence, in connection with all the other evidence in the case. This really accorded to the plaintiff the full benefit of the rule of "res ipsa loquitur," or the matter speaks for itself, and was as favorable to him as the law permitted. The contention that there was error in the portion of the instruction which placed the burden of proof on the plaintiff could not be sustained. Nor was there error in the fact that the jury was not instructed that the burden of proving that the burn resulted from a supersensitive skin or peculiar susceptibility of the plaintiff to the effect of the roentgen ray was on the defendant. The evidence suggested two possible reasons for the burn: One was the negligence of the defendant, and the other was the supersensitive skin or a peculiar susceptibility on the part of the plaintiff to the effect of the roentgen-ray treatments. The plaintiff contended that the burn was the result of the negligence of the defendant. The defendant contended that it was the result of a supersensitive skin, of which he had no knowledge, and which he could not discover by the exercise of due care. The court instructed the jury generally that the burden of proof was on the plaintiff to establish facts entitling him to recover damages. That was correct. In this connection the jury was instructed further:

> Where proof discloses that a given result may have been produced by either of two or more things operating as causes, one of which things is negligence of the defendant, and there is as much reason to believe that it resulted from one as from any other, the jury is not justified in attributing it to negligence of the defendant. If the result complained of is as reasonably attributable under the evidence to a cause or condition independent of the defendant's acts as to negligence on his part, the proof does not establish negligence.

This also was correct; and this rule of law was applicable to the case. The burden was not on the defendant to establish that the burn in fact resulted from the peculiar susceptibility of the plaintiff. If it merely appeared that there was as much reason to believe that the burn resulted from the peculiar susceptibility as from the negligent treatment, a verdict could not go against the defendant. It was argued that there was no evidence that the plaintiff was peculiarly susceptible. The evidence showed that some persons are peculiarly susceptible to roentgen-ray treatments, and that unexpected results do sometimes ensue from such treatments; that the treatment administered was the usual and ordinary treatment for pustular acne, from which a burn such as the plaintiff suffered was not likely to follow. If the jury believed the experts who so testified, it was warranted in inferring that it was as probable that the burn resulted from peculiar susceptibility as from negligent treatment. Furthermore, an instruction was in accord with the well settled law on the subject, when the instruction said that an honest mistake of judgment, if that judgment was formed with due care and skill, did not render the defendant liable for the consequences; and that, if what was done was in all respects in accordance with common practice under all the circumstances involved, the jury must find for the defendant on the issue of negligence.

Objection to the testimony of a medical expert on the ground that he is not competent or qualified must be made at the time the testimony is offered, and, if not so made, the objection is waived.

Weight of Expert Testimony

(Madison County Mining Co. v. Industrial Commission et al. (Ill.), 138 N. E. R. 211)

The Supreme Court of Illinois, in reversing a judgment that confirmed an award of the industrial commission which granted an injured employee compensation for permanent total disability and, in addition, a pension for life, says that the man testified that he was struck a glancing blow in the back by an elevator chain weighing about 1,000 pounds. The finding that he was wholly incapable of performing any work rested entirely on his unsupported testimony, while there was the testimony of several physicians that tended to show that he was not wholly and permanently incapable of work. Expert evidence is legal and competent evidence, and is to be received, treated and weighed precisely as other evidence by triers of fact in this character of cases. The weight of such testimony must be determined by the character, capacity, skill, opportunities for observation and apparent state of mind of the experts themselves as seen and heard, and estimated by the triers of fact and by the nature of the case and its developed facts.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirty-Fifth Annual Meeting, held at French Lick Springs, Ind., May 31-June 2, 1923

(Concluded from page 244)

Effect of Magnesium Sulphate on Blood Pressure in Acute Nephritis

DRS. KENNETH D. BLACKFAN and C. A. MILLS, Cincinnati: In studying the dehydrating action of calcium and magnesium salts in acute nephritis, we have observed that there is lowering of blood pressure following the administration of magnesium sulphate. When a 2 per cent. solution of magnesium sulphate is given intravenously, in selected cases, the blood pressure promptly falls and remains at a low level for about five hours. With the fall in blood pressure, the headache, visual disturbances and convulsions abate. The injection is usually followed by diuresis, diaphoresis, or free catharsis. The procedure has had no apparent effect on the albuminuria or hematuria. The fall in blood pressure begins usually after the introduction of from 15 to 20 c.c. of the solution. When introduced slowly, at the rate of 10 c.c. a minute, the respiratory and cardiac rate is not changed. The total amount given at a single injection has not exceeded 10 c.c. per kilogram of body weight.

DISCUSSION

DR. HENRY HEIMAN, New York: Possibly one of the reasons for the action of magnesium sulphate is that it reduces the tension on the muscular system. When it was first used in tetany by Meltzer, he said it did not act on the organisms, but relieved muscular spasticity. We tried it in chorea some years ago on that theory, but without success.

Intoxications Associated with Alterations in the Physicochemical Equilibrium of the Body Cells in Fluid

DRS. W. MCKIM MARRIOTT and S. W. CLAUSEN, St. Louis: Evidence is constantly accumulating which points to the fact that the condition ordinarily referred to as nephritis is in reality a widespread systemic disease. The edema of Bright's disease seems to be due to the fact that the tissues hold fluid rather than that the kidneys are functionally unable to excrete it. The factors involved are physical as well as chemical. An investigation of the colloidal osmotic pressure of the blood serum was made by Dr. Clausen, who found that this pressure was uniformly low in patients suffering from acute Bright's disease. The colloidal osmotic pressure, in a general way, parallels the protein content of the serum. On the other hand, not all patients with lowered colloids have edema. An effort was made to determine what other factors might be operative. The surface tension of the blood serum was studied by the drop weight method, and it was found that the surface tension was invariably low in patients with Bright's disease and persistent edema. With the disappearance of the edema, the surface tension returns to normal. In patients who failed to recover and whose cases were followed to the time of death, the surface tension was observed to become progressively lower. The surface active substance which was shown to be present in the blood was also found in the urine, from which it was isolated in fairly pure form. This substance proved to be neither lecithin nor cholesterin, nor is it one of the usual proteins. Its exact nature is still under investigation. This substance has not been found in the serum of patients suffering from edema of cardiac origin, nor in the serum of patients with other forms of nephritis. These facts have been found to be of some value in differential diagnosis. We have found that the majority of patients with the type of Bright's disease here described have been suffering from purulent infections of the nasal accessory sinuses. There has been a prompt disappearance of the edema and other signs of Bright's disease when the sinuses have been drained. Organisms isolated from the sinuses and grown in pure culture do not produce a surface active substance.

Use of Insulin in the Treatment of Diabetes in Children

DRS. DAVID MURRAY COWIE and J. P. PARSONS, Ann Arbor, Mich.: Little danger can come from the administration of insulin to babies with diabetes, because the usual spacing of feedings can easily be taken advantage of to insure sufficient carbohydrate coming into the blood stream when hyperinsulemia might otherwise develop. In children no longer bottle fed, the danger might very easily arise because of the inability of the child to announce developing symptoms. However, averting danger in child cases is only a matter of careful management and meal spacing which will insure a carbohydrate income at these times. The patient should not be allowed to pass from control until the lowest level of insulin intake has been established. Infections of all kinds occurring during the course of diabetes are overcome rapidly and without harmful effect by insulin. The insulin intake should be increased at these times. The evil effects of surgery and anesthesia in diabetes can be overcome by insulin. No child should be given insulin without a careful study of the blood sugar content by a reliable method. Diabetes in children, as in adults, should receive insulin treatment.

DISCUSSION

DR. HENRY RAWLE GEYELIN, New York: Dr. Cowie speaks of the gain in weight as apparently the result of insulin therapy and the increased tolerance for carbohydrates. Before we draw too definite conclusions we must remember the variations in all cases of diabetes from year to year, from month to month and even from week to week, so unless we are cautious we may make mistakes in drawing conclusions from cases under insulin treatment for even two or three years. There is a factor in regard to the gain in weight of these children who have received insulin treatment which I should like to emphasize. It is a well known fact that when the low peak in the diabetic curve is found, there is a gain in the carbohydrate tolerance which is striking, and also a gain in weight, but when the highest weight is reached, the weight curve showed a plateau which was found to be the proper weight for the height. At this point less and less insulin is required for the amount of carbohydrate.

DR. JOHN HOWLAND, Baltimore: Even with a comparatively mild infection, it is almost impossible to keep a diabetic child sugar free, even with large amounts of insulin. As regards the rise in carbohydrate tolerance, before the days of treatment with insulin, I never saw a child whose carbohydrate tolerance consistently rose; in other words, in every child there is a tendency to a more or less rapid fall in the carbohydrate tolerance.

The Influence of the Diet During Pregnancy and the Lactating Period on the Susceptibility of the Young to Rickets

DR. ALFRED F. HESS, New York: Rats from six different stocks were employed in our study. In all but one group rickets regularly came about on the standard dietary. The young of one stock, however, failed to develop rickets. By changing the dietary of these mothers during the lactating period, it was possible to render the young susceptible to rickets. An attempt was made to render the young refractory by feeding the mother rats cod liver oil during pregnancy or during lactation. This failed; the young developed rickets. In one series, 20 drops of cod liver oil was administered to the mother daily, which is equivalent, considered on the basis of body weight in kilograms, to 6 ounces for an adult. Nevertheless, rickets developed when the young were put on the standard diet; the inorganic phosphate of the blood decreased. A few tests on human beings indicated that infants cannot regularly be protected by giving mothers cod liver oil during pregnancy. In the observations on human beings it was found that the calcium and phosphorus in the blood of pregnant women is about normal; the calcium was slightly low at about term. The inorganic phosphate content of the blood of the mother and child are not the same; that of the infant is almost regularly higher than that of its mother. The phosphate of a premature infant was not low, nor was it low in syphilitic infants. This fact may be used in differentiating between congenital syphilis and rickets, when it is difficult

to interpret roentgenograms. Although the blood phosphate of the infant is higher than that of the mother, it is lower than in infants in postnatal life. In the infants whose cases were followed for a year, it was found that there was no relationship between the amount of inorganic phosphate which had been found at birth and the development of rickets in the course of the winter. Some born with a higher blood phosphate developed rickets, whereas others born with a low blood phosphate did not develop rickets. Therefore, the content of inorganic phosphate at birth furnishes no criterion, and is of no prognostic value in regard to subsequent development of rickets, nor does the development of rickets depend on the store of inorganic phosphate which the infant brings with it at birth.

Relation Between the Acid and Alkali of the Blood in Epilepsy

DR. HENRY RAWLE GEYELIN, New York: We have charted the hydrogen-ion concentration of the blood in a series of epileptic patients. The figures show that there is no p_H curve definitely characteristic of epilepsy, but it may be said that the blood of epileptics shows a distinctly wider range of p_H from day to day and from hour to hour than does the blood of normal persons.

DISCUSSION

DR. DAVID MURRAY COWIE, Ann Arbor, Mich.: Soon after the starvation treatment of epilepsy was announced, I treated a 4 year old epileptic boy by this method, with the exception of permitting oranges to the extent of twelve a day after the second day. It is now nearly three years since beginning this treatment, and there have been no recurrences of the seizures. The patient continues to take three or four oranges a day. The orange diet was supplemented in the course of time with 5 per cent. vegetables, then 10 per cent. vegetables, and finally the patient was advanced to a substantial diet, with a minimum of animal food, on which he remains. We hve had several other epileptic children who have responded in the same way, but who were put to bed and started on oranges without a previous period of absolute starvation. We must consider the fate of the organic acids in these cases.

Calcium and Phosphorus Determinations in the Blood Plasma of Rickets and Tetany

DRS. JULIUS H. HESS, CHI CHE WANG, JOSEPH K. CALVIN and AUGUSTA FELCHER, Chicago: Consecutive blood examinations to determine the calcium phosphorus concentration, their rations and products are most important in the diagnosis of the degree and stage of rickets and the prognostication of probable complications. A calcium and phosphorus concentration with a minimal product between 30 and 40 is the determining factor in the calcification of bones. All cases of rickets with a calcium-phosphorus product of less than 30 must be considered as in the active zone. The low phosphorus is usually the factor influencing the low factor, but this may also be caused by a low calcium, or by both. Tetany may complicate both moderate and severe rickets. In every case examined, the calcium and the phosphorus of the blood were below the normal average. The average product of calcium and phosphorus was lower in cases of tetany than in uncomplicated moderate rickets, but slightly higher than in severe rickets. Although in the majority of these cases there was evidence of healing, indicated by the roentgenograms, even in those showing the more severe forms of rickets, in ten cases the product of calcium and phosphorus was below the healing zone. Although there is a relatively high concentration of phosphorus in cases of severe rickets complicated by tetany, the blood picture tends to revert to the relatively low phosphorus and high calcium content in the early stages of treatment. The clinical symptoms of tetany improve as the calcium content of the blood increases under treatment, and the electrical reaction may be normal even before the calcium returns to the normal figure. There is a more or less definite blood picture in rickets associated with tetany, but we believe that these conditions represent two phases of the same disorder rather than two distinct types, that the blood picture may be affected by extraneous factors and that it may vary according to the activity or healing of the process.

The Results of Follow-Up Work with Infants in a Maternity Hospital

DRS. WALTER LESTER CARR and BRET RATNER, New York: Clinics have been established for nutrition, etc., but a gap exists from the time that the mother leaves the maternity hospital and the time she first seeks medical advice for her baby. This results in the development of many preventable conditions and the impeded progress of the infant. This condition can be corrected best by the establishment of postnatal clinics in the maternity hospital, under the direction of pediatricians. We have kept in touch with 410 babies born at the Manhattan Maternity Hospital, where we established such a clinic. The routine of the clinic consists in obtaining the history of the confinement, the birth weight and the Wassermann reaction, and in making a complete physical examination and recording the results. Two nurses were in attendance, and two social service workers carried out the follow-up work. The babies were brought to the clinic once a week until the sixth week, then once every two weeks, and then once a month. Some of the infants were seen as often as three times a week if this was thought to be necessary. Acutely sick infants, or those requiring special treatment, were transferred to special hospitals. When treatment was completed, the child was returned to the clinic for advice on general hygiene and feeding. The mothers were given instruction in the hygiene and management of the child, and the physiologic facts about breast secretion and feeding were explained to the mother. The results obtained show the value of such a clinic in the prevention of disease and the correction of minor ailments. It also affords the physician an opportunity to study the normal development, anomalies and diseases of the new-born. Observations made on this large group of mothers and babies lead to the conclusion that menstruation has very little effect on the process of lactation. In the majority of cases absolutely no ill effect was noted. All the premature, Italian and colored infants were treated as potential rachitics, and from the third month were given cod liver oil and sun exposures. As a result no frank cases of rickets developed in this series.

Exophthalmic Goiter in Childhood

DR. HENRY HEIMAN, New York: In three cases of exophthalmic goiter in children, aged 4, 5 and 7 years, respectively, there was no history of syphilis, but heredity played an important rôle. The basal metabolism test proved to be the best guide in diagnosis as well as in the determination of the severity of the disease. It seems that the most rational procedure is to institute first a regimen of strict physical and psychic rest for from six to ten weeks. If the patient shows no improvement, a short period of roentgen-ray therapy should be tried. Thyroidectomy should be performed if there is no response to the roentgen rays. In the severer cases, it is safer not to wait too long before operating.

DISCUSSION

DR. HAROLD K. FABER, San Francisco: A baby was born of a mother suffering from exophthalmic goiter, two or three weeks prematurely, with a very rapid pulse, excessive restlessness and exophthalmos. The baby was never put to the breast. The symptoms diminished and the exophthalmos disappeared at the age of about 4 weeks. An interesting point in this case was that the child required higher caloric feeding than was normal for its age.

Etiology and Treatment of Herpetic (Aphthous and Aphtho-Ulcerative) Stomatitis and Herpes Labialis

DR. H. J. GERSTENBERGER, Cleveland: The administration of the water-soluble vitamin B produces in herpetic stomatitis, aphthous stomatitis, herpes labialis, acute gingivitis, and ulcerative stomatitis a remarkably rapid improvement and recovery. It is suggested that the metabolic disturbance concerned is due to a disproportion between the water-soluble B supply of the body and the metabolic requirements of the given patient's body for this vitamin; that the presence in the individual of a metabolism, that operates excessively

or uneconomically, or both, because of heredity, or of pathologic or physiologic peculiarities existing at the time in the individual or because of the consumption of a liberal and peculiar diet, or both, is responsible for the metabolic disturbance as suggested. Vincent's angina, noma and the various forms of herpes may belong to this class of disturbances. Some of the formes frustes of scurvy may not be true cases of scurvy, but water-soluble B disturbances that improve on the administration of orange juice because of the latter's content of the water-soluble vitamin B. In the future, in such cases, a liberal administration of the water-soluble B vitamin in pure form should be carried out before orange juice is used. The liberal use of canned tomato is an economic and dependable source of vitamin B.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

25: 257-338 (April) 1923

*Brain Tumors in Young Children. M. Wollstein and F. H. Bartlett, New York.—p. 257.
*Characteristics of Cerebrospinal Fluid in Postdiphtheric Paralysis. J. C. Regan, C. Regan and B. Wilson, Brooklyn.—p. 284.
*Transfusion Through Umbilical Vein in Hemorrhage of New-Born. Report of Case. J. B. Sidbury, Wilmington, N. C.—p. 290.
Causes of Absence in Boy's School. C. H. Sanford, Concord, N. H. —p. 297.
Saliva of Nursling. A. Hymanson, New York, and H. Davidsohn, Berlin.—p. 302.
*Bacteriologic Study of Acute Diarrheas in Young Children. M. Wollstein, New York.—p. 310.
Statistical Analysis of Causes of Palpable Lymph Glands in New-Born. L. Dunn and H. L. Dunn, Minneapolis.—p. 319.

Brain Tumors in Children.—The results of a study of seven cases of brain tumors in children are recorded by Wollstein and Bartlett. Five neoplasms were infratentorial and located in the cerebellum; two were in the cerebrum. These and two other cases were listed among 4,563 necropsies at the Babies' Hospital. All the tumors were gliomatous in type. Of the supratentorial tumors, one occupied the left cerebral hemisphere and was congenital in origin. The other tumor occupied the basal ganglions. In the five infratentorial tumors the vermis of the cerebellum was involved. The growth involved the right cerebellar hemisphere in four cases and the left hemisphere in one instance. The medulla and the pons were infiltrated in two cases, and the right cerebellopontile peduncle was involved in two instances. The upper cervical cord was compressed in three of the cases. Hydrocephalus was present in each of the seven cases. The most striking feature of the symptomatology was the variability in physical signs. Convulsions were absent in all cases except one in which a convulsion occurred just before death. Vomiting did not appear as a significant symptom in any of the cases. The spinal fluids showed nothing that is distinctive. Xanthocromia was present in only one case in which there was a cerebral hernia.

Cerebrospinal Fluid in Postdiphtheric Paralysis.—The cerebrospinal fluid in postdiphtheric paralysis is described by the Regans and Wilson as being a clear limpid liquid, flowing usually under normal or slight hypertension. The Bordet-Wassermann reaction of the spinal fluid was uniformly negative in each of sixteen cases. The cell count was always within normal limits, less than 10 cells per c.mm., and the cells found were small lymphocytes. The globulin was increased in less than one third of the cases. The increase was slight, occasionally moderate, never marked. There existed, therefore, in certain cases (less than one third) a dissociation between the cytologic and chemical findings. The colloidal gold reaction was the most constantly positive pathologic reaction encountered in the fluid of this disease. The reduction usually occurred in the syphilitic zone, occasionally extending into the higher dilutions. The reaction seemed gradually to subside, reaching normal as convalescence was established and paralysis disappeared.

Transfusion Through Umbilical Vein.—A baby was transfused by Sidbury through the umbilical vein on the fourth day of life with the greatest ease. The fact that the great majority of cases of hemorrhagic disease of the new-born occur during the first three days of life should emphasize the fact that if transfusion is necessary in these infants it may be performed through the umbilical vein with greater ease than by other routes. The probability of a clot in the umbilical vein is very unlikely because the blood is fluid many hours after death in these cases. Transfusion through the sinus in cases of intracranial hemorrhage may increase intracranial pressure, which is not desirable. Transfusion through the superior longitudinal sinus is comparatively simple for one experienced, while the umbilical route is simple for those inexperienced in the sinus route.

Bacteriologic Study of Acute Diarrheas.—Bacteriologic examinations of stools from a series of eighty-six young children admitted to the Babies' Hospital with some form of intestinal disturbance were made by Wollstein, and twenty children were found to harbor dysentery bacilli. Three were of the Shiga type of *B. dysenteriae*, five of the Flexner type and twelve of the Mount Dessert type. The highest mortality rate occurred among the group of Shiga infections; but the group of Mount Dessert infections showed the most prolonged course and the severest lesions at necropsy. The mortality rate of the dysentery group of cases was 40 per cent., while the mortality of the entire group was 39.5 per cent. Serum therapy was applied in seventeen of the twenty-children suffering from dysentery, with no untoward, and no strikingly positive, results.

American Journal of Psychiatry, Baltimore

2: 501-759 (April) 1923

Practical Value of Study of Personality in Mental Disorders. G. S. Amsden, White Plains, N. Y.—p. 501.
Physiologic Level in Dementia Praecox. T. Raphael, Ann Arbor, Mich. —p. 515.
Study of Mechanism of Obsessive Compulsive Conditions. P. Greenacre, Baltimore.—p. 527.
Types of Word Association in Dementia Praecox, Manic-Depressives, and Normal Persons. G. Murphy.—p. 539.
*Statistical Analysis of Certain Phases of Epilepsy. O. C. Smith, Baltimore.—p. 573.
Further Report of Nurses' Conduct Scheme. J. S. Plant, Boston.—p. 593.
General Pathology and Relationship to Certain Mental Diseases. R. A. Deilty, Danville, Pa.—p. 614.
*General Paresis: What It Is and Its Therapeutic Possibilities. H. C. Solomon, Boston.—p. 623.
Important Factors in Hospital Treatment of Psychoneurotic Exservice Men. T. J. Heldt, U. S. P. H. S.—p. 647.
Neuropsychiatric Service of Department of Soldiers' Civil Reestablishment, Canada. C. B. Farrar, Guelph, Ont., Can.—p. 665.
Neuropsychiatric Exservice Man and His Civil Reestablishment. G. O. Ireland, Washington, D. C.—p. 685.
Psychotic Symptoms of Epilepsy. H. L. Paine, N. Grafton, Mass.—p. 713.

Epilepsy.—The main points of interest in Smith's study of age of onset and type of the disease manifested may be summed up as follows: Without regard to family history, in males the average age of onset is later than in females and this lies within the group having grand mal attacks without petit mal. Furthermore, this particular type of case occurs more frequently in males than in females. When the cases are separated in groups for different family histories, the age of onset for both sexes is later in the negative group and more markedly so for males than for females. In regard to the finding that grand mal without petit mal occurs more frequently in males than in females, this is found to occur chiefly in the negative family history, whereas females show no marked differentiation.

Treatment of General Paralysis.—The problem of treatment of general paralysis, Solomon says, offers a certain amount of difficulty due to the lack of any sufficiently powerful spirocheticidal drug. The conventional routine treatment of early syphilis, namely, a half dozen injections of arsphenamin weekly, followed by twelve or fifteen injections of mercury at a like interval, is rarely, if ever, of any benefit to the paretic. To obtain results, the treatment must be pushed to the limit of the patient's tolerance. If giving arsphenamin at frequent intervals over a considerable period of time does

not produce satisfactory results, other methods must be relied on. For this purpose intrathecal injections have some value, but the injection of serum into the lumbar region is theoretically and practically inefficient as compared to cisternal or ventricular injections, because it does not reach the cerebrum in any considerable amount. Therefore, Smith has adopted the procedure of combining intrathecal and intravenous therapy and spinal drainage, and treats patients somewhat as follows: semiweekly injections of arsphenamin associated with spinal drainage, lumbar, cisternal, and ventricular injections of serum given at intervals of three or four days, and repeated for a number of months. The results obtained by this procedure have been somewhat more satisfactory than when less vigorous treatment was given. Smith points out that it would be logical to add to this methods which apparently have had some therapeutic benefit by increasing the immunity reaction of the patient, such as the tuberculin or sodium nucleinate injections.

Annals of Surgery, Philadelphia

77: 513-640 (May) 1923

*Ischemic Fat Necrosis. C. E. Farr, New York.—p. 513.
*Significance of Diarrhea Following Abdominal Operations. E. Beer, New York.—p. 524.
Double Kidney. D. N. Eisendrath, Chicago.—p. 531.
*Method for Determining Question of Drainage in Intra-Abdominal Infection. A. O. Wilensky and B. N. Berg, New York.—p. 558.
Reduplication of Ureter. J. F. Geisinger, Richmond, Va.—p. 563.
*Modification of Operation of Bucknall for Hypospadias. S. C. Harvey, New Haven, Conn.—p. 572.
Benign Tumors of Stomach. Four Cases. J. Douglas, New York.—p. 580.
*Gallbladder Disease in Childhood. E. L. Kellogg, New York.—p. 587.
Combination Ileus, or Coincidence of Two Intestinal Occlusions. K. Schlaepfer, Baltimore.—p. 594.
Transposition of Rectus Muscle and Utilization of External Oblique Aponeurosis in Radical Cure of Inguinal Hernia. W. S. Schley, New York.—p. 605.
*Anterior Dislocation at Elbow Joint. Report of Case. F. J. Tees, Montreal, Can.—p. 612.
Cardiospasm in Aged. J. H. Zaaijer, Leiden, Holland.—p. 615.

Ischemic Fat Necrosis in Infant.—Farr reports a case of subcutaneous fat necrosis occurring in an infant, aged 4 weeks; so far as careful search of the literature shows, it is the only one occurring in an infant. Considering the weight and age of the child, it is also probably the most extensive case on record of fat necrosis with recovery. The child weighed about eight pounds and presented no evidence of trouble except a flaccid paralysis of the left arm and hand, probably due to birth trauma, and a very slight rash on the face. On palpation, however, a large number of subcutaneous tumors were found over the neck and shoulders, extending as high as the submaxillary region and as low as the seventh rib posteriorly. These tumor masses were of irregular shape and varied in size from 0.5 to 5 cm. in diameter; they were for the most part oval in shape, although one or two were sausage-like masses. Their consistency was considerably firmer than the surrounding normal fat. There was no evidence of pain, tenderness, nor any inflammatory signs whatever. The tumors were adherent to the skin, but were freely movable on the underlying tissues. The largest masses were found over the deltoid, supraspinatus and infraspinatus regions. Various diagnoses were considered, but the one finally accepted was multiple congenital lipomata or, possibly, some condition of unaltered embryonal fat. Microscopically, the picture was typical of fat necrosis of the type usually considered pancreatic in origin. Six other cases occurring in adults are also reported.

Cause of Diarrhea Following Abdominal Operations.—Localized pericolic suppurative peritonitis, ileocolitis and proctitis, perhaps as a terminal infection in weakened patients, or in patients with renal insufficiency, Beer says, must be considered in looking for an explanation of these diarrheas, while it is just possible that too large a stoma may favor the development of this startling complication. From a therapeutic standpoint, recovery in the mild cases follows simple diet and the usual astringent therapy; on the other hand, the severe cases have baffled all therapy. Each case should be studied individually. The milder transient diarrheas are probably dyspeptic or irritative in origin.

Determining Question of Drainage in Intra-Abdominal Infection.—The method employed by Wilensky and Berg consists in making smears directly from the surfaces of the involved viscus and from any peritoneal exudate which may be present at the time of operation. Utilizing a rapid stain, the presence or absence of organisms is determined microscopically. Similar to the Carrel technic for the determination of the degree of infection in wounds, the method attempts to ascertain approximately the degree of infection of the operative field by the number of organisms found per microscopic field. With the observation of a sufficiently large number of cases the determination of the greatest number of organisms per field compatible with the safe primary closure of the peritoneal cavity becomes possible.

Modification of Bucknall Operation for Hypospadias.—Modifications of the Bucknall operation for penoscrotal hypospadias are described by Harvey which make this principle applicable also to the penile and coronal malformation of the urethra. A method is described also for carrying the distal urethra through the glans, rather than on its under surface, as originally suggested.

Gallbladder Disease in Childhood.—Sixty-four cases are reported by Kellogg. They are grouped under three headings: (1) cholelithiasis of early infancy; (2) cholelithiasis of later childhood; (3) cholecystitis without gallstones. Cholelithiasis in the new-born appears to be due to an unknown fetal pathology and is usually fatal. Cholelithiasis of later childhood does not differ from that in adults, but is often wrongly diagnosed because this lesion is not considered.

Anterior Dislocation at Elbow Joint.—Tees cites the case of a boy, aged 12, whose curiosity led him to try the effect of feeding his right hand between the revolving rollers of a wringing machine in a laundry, with the result that his arm was securely caught. As he attempted to extricate himself from the machine, his elbow was squeezed by the rollers, and the olecranon forced downward and forward over the end of the humerus, bringing about a complete anterior dislocation of both radius and ulna, with detachment of the internal epicondyle.

Archives of Internal Medicine, Chicago

31: 455-622 (April) 1923

*Use of High Fat Diet in Treatment of Diabetes Mellitus. L. B. Newburgh and P. L. Marsh, Ann Arbor, Mich.—p. 455.
Stem-Stature Index. H. Gray, Boston.—p. 491.
*Albuminuria: Its Clinical Significance as Shown by Chemical Study of Blood. T. H. Coffen, Portland, Ore.—p. 499.
*Clinical Experience with Quinidin. C. S. Burwell and F. R. Dieuaide, Baltimore.—p. 518.
*Mycotic (Bacterial) Aneurysms of Intravascular Origin. A. Stengel and C. C. Wolferth, Philadelphia.—p. 527.
*Distribution of Sugar in Whole Blood, Plasma and Corpuscles; Permeability of Red Blood Corpuscles for Sugar in Diabetic and Nondiabetic Cases. H. J. John, Cleveland.—p. 555.
*Blood Pressure in Relation to Types of Bodily Habitus. J. W. Larimore, St. Louis.—p. 567.
*Hemoglobinuria in Hemolytic Jaundice. H. Z. Giffin, Rochester, Minn. —p. 573.
Relation of Age and Obesity to Vital Capacity. B. D. Bowen, Buffalo. —p. 579.
Acid-Base Equilibrium. I. Clinical Studies in Alkalosis. A. E. Koehler, Madison, Wis.—p. 590.
Physical and Chemical Studies of Human Blood Serum. I. Study of Normal Subjects. D. W. Atchley, R. F. Loeb, E. M. Benedict and W. W. Palmer, New York.—p. 606.
Id. II. Study of Twenty-Nine Cases of Nephritis. D. W. Atchley, R. F. Loeb, E. M. Benedict and W. W. Palmer, New York.—p. 611.
Id. III. Study of Miscellaneous Disease Conditions. D. W. Atchley, R. F. Loeb, E. M. Benedict and W. W. Palmer, New York.—p. 616.

High Fat Diet in Diabetes.—The efficacy of a high fat diet in the treatment of diabetes was made the subject of study by Newburgh and Marsh. A low protein, low carbohydrate, high fat diet fed a large group of diabetic patients since March 1, 1918, (1) produced and maintained an aglycosuric state; (2) was not attended by acidosis and caused its disappearance when present (short of coma) at the beginning of treatment; (2) maintained nitrogen balance ; (4) did not cause a hyperlipoidemia and was attended by its disappearance in those patients in whom it was present at entrance; (5) supplied sufficient energy to (*a*) avoid the evils of fasting and undernutrition and (*b*) permit an amount of activity compatible with earning a livelihood; (6) was, within the

limits of the observations made, not attended by downward progress in uncomplicated cases. In none of 190 cases has the diet been responsible for diarrhea. Patients were allowed from 900 to 1,000 calories per day. A standard maintenance diet, composed of protein, 55 gm., fat, 220 gm., carbohydrate, 35 gm., gives a ratio of 2.5. In spite of these high fat values none of the patients developed acidosis. Of still more importance is the fact that in those patients who came in with an acidosis short of coma, this acidosis disappeared on the diet. The important conclusion derived from this experience with these 190 cases is that the fear of the use of fat in the treatment of diabetes mellitus is exaggerated, and that fat may be used without danger of acidosis. A diet from 900 to 1,000 calories derived chiefly from fat is devoid of most of the disadvantages of complete fasting for purposes of desugarization. It produces the same fall in basal metabolic rate as does fasting. It has advantages over fasting in that it is more successful in desugarization and is far less dangerous.

Blood Chemistry in Albuminuria.—The blood and urine in twenty cases of albuminuria were analyzed by Coffen and his findings indicate that albuminuria may not be due to serious damage in the kidney and may even be excessive from extrarenal factors. Passive congestion of the kidneys occurs not only in cardiac breakdown due to valvular insufficiency but may be a result of long continued heart strain from arterial hypertension. Albuminuria occurs so frequently as a part of the clinical picture of arterial hypertension that these cases form a large group in the patients studied. While chronic interstitial nephritis is assumed to be present, the "renal crisis" is often due to myocardial weakness and results in passive renal congestion. In a miscellaneous group, two cases of orthostatic or postural albuminuria are cited. Renal function tests show no marked disturbance in the kidneys. Of the various functional tests, those using the urine are disappointing. The chemical examination of the blood seems to offer a means of early differentiation between renal or extrarenal albuminuria. The test diet for fixation of specific gravity, and for the estimation of chlorid and nitrogen excretion and water output also gives an early clue of renal function. The term "cardionephritis" seems to Coffen to be a misnomer in view of the fact that the nephritic symptoms may be largely due to congestion and not to extensive renal damage. Efforts to make clinical and pathologic nephritis conform still fail because of the complicated mechanism of renal secretion. Attention is called to the predominating symptoms in vascular hypertension. Sooner or later every patient shows singly or jointly (*a*) nephritis, (*b*) cardiac or (*c*) cerebral symptoms.

Quinidin in Auricular Fibrillation.—Of sixteen cases of auricular fibrillation treated by Burwell and Dieuaide with quinidin sulphate, fourteen (88 per cent.) reverted to normal mechanism. Regular rhythm has persisted in eight of these patients; in six for more than six months. In the cases remaining persistently regular there has been marked improvement in the patient's health. Death occurred in three patients; in one due to embolism from an intra-auricular thrombus. Observations of the patients' activity, systolic blood pressure, vital capacity, and subjective condition show a consistent improvement in all patients whose cardiac rhythm became regular and remained so for some time. It is established that the change in rhythm can be effected in at least 50 per cent. of the cases. Two grams of quinidin sulphate may be administered daily without the production of severe toxic symptoms, and such a dosage results in a higher percentage of successes than does a smaller dosage. So far as is known at present, the danger associated with the use of this drug lies not in its direct effects but in embolism from an intra-auricular thrombus, following the onset of normal auricular activity.

Mycotic Aneurysms of Intravascular Origin. — Three unquestionable cases of mycotic aneurysms of intravascular origin and one in which this diagnosis is probable, are reported by Stengel and Welferth. In one of these cases, the first to be recorded, a clinical diagnosis of mycotic aneurysm of the arch of the aorta was confirmed at necropsy. In the second case the aortic aneurysm was healed with replacement of destroyed media and intima by a thin layer of young connective tissue covered over by newly formed endothelium which had grown out from the intima at the edges of the aneurysm. In the third case all clinical evidences of an unmistakable femoral mycotic aneurysm disappeared. In the fourth case there was a violently pulsating, but symptomless, aneurysm of the innominate artery that appeared to be healed, in a boy aged 18, without any evidences of syphilis, but with a history of acute rheumatism and an attack of fever with cardiac involvement. The cases of mycotic aneurysm of intravascular origin have been collected from the literature by the authors and on the basis of this material and their own, the etiology, pathology and clinical manifestations of the condition are discussed.

Sugar in Erythrocytes of Diabetics and Nondiabetics.—John found that in nondiabetics, after the ingestion of glucose, the sugar in the corpuscles may be either increased or decreased as compared with the plasma content, the tendency to an increase slightly predominating. In diabetics the sugar in the corpuscles is practically always decreased below the plasma content. On exposure of the red blood corpuscles of nondiabetics to a concentration of 1 gm. of glucose in 100 c.c. of physiologic sodium chlorid solution for two hours, the corpuscles took up less sugar than the corpuscles of diabetics treated in a like manner.

Blood Pressure in Relation to Bodily Habitus.—Larimore analyzed the blood pressure for its relation to bodily habitus in a group of 417 factory workers. The sthenic habitus was accompanied by a higher blood pressure than the asthenic habitus. The pressure accompanying the hyposthenic habitus was intermediate.

Hemoglobinuria in Hemolytic Jaundice.—The important features of Giffin's case were slight jaundice and anemia which had probably existed for three years; marked jaundice and anemia of six months' duration; crises similar to those of hemolytic jaundice without, however, gallbladder colic; a blood picture which at times approached that of pernicious anemia; the presence of bile in the stool and its absence from the urine save in crises; an increased reticulated fragility of the erythrocytes on two examinations; and increased reticulated cell count; seven severe crises which were associated with hemoglobinuria, in one of which hemoglobinemia and bilateral hemoglobinuria were demonstrated; the absence of any effect of cold or exposure on the occurrence of the hemoglobinuria; the absence of hemoglobinuria after transfusion, and the recurrence of the hemoglobinuria when the erythrocytes reached approximately 2,000,000.

Arkansas Medical Society Journal, Little Rock

19: 223-234 (May) 1923

Nonvenereal Infected Prostate. W. T. Wootton, Hot Springs.—p. 223.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 224.

Boston Medical and Surgical Journal

188: 837-888 (May 31) 1923

Duty of Physician to Public and His Relation to Local Board of Health. F. G. Curtis, Newton, Mass.—p. 837.
*Gangrene of Lung. Report of Case. H. Binney, Boston.—p. 844.
Pulmonary Abscess Following Tonsillectomy; Report of Case. F. T. Clark, Westfield, Mass.—p. 846.
*Permissible Breakfast Prior to Basal Metabolism Measurements. C. G. Benedict and F. G. Benedict, Boston.—p. 849.
Tendon Suture Which Permits Immediate Motion. F. H. Lahey, Boston.—p. 851.
*Study of Blood Sugar Curves in Jewish and Non-Jewish Patients with No Apparent Glycogenic Disturbance. H. Morrison and W. R. Ohler, Boston.—p. 852.
Address to Graduating Class of Nurses Delivered in 1899 at Long Island Hospital. A. Post, Boston.—p. 854.
*Question of Physical Injury to Working Child of Fourteen to Sixteen. H. G. Rowell, New Bedford, Mass.—p. 856.
Observations Made During American College of Surgeons' Cruise to South America. M. L. Alling, Lowell, Mass.—p. 858.

Gangrene of Lung.—In Binney's case an abscess in the upper lobe of the right lung led to gangrene of the lung. A piece of necrotic lung tissue about 7 inches in length was evacuated through a drainage opening. The patient recovered. Binney advocates the two stage operation in these cases as a life saving measure.

Permissible Breakfast Prior to Basal Metabolism Determination.—The Benedicts have determined that a light meal

may be permitted before making basal metabolism determinations. The meal they use consists of: 1 cup (200 c.c.) caffein-free coffee; 16 mg. saccharin; 30 gm. medium cream and 25 gm. potato chips. This meal is nearly protein-free, contains no ketose sugar, has an appreciable proportion of fat and a total calorific value of not far from 250 calories, depending somewhat on the percentage of fat in the cream. From the striking effect which this very light meal has on the appetite and the general sense of well-being it is quite clear that a meal of this type does not produce any measurable influence on metabolism and certainly with normal persons cannot interfere with basal metabolism measurements, provided the food is completely eaten at least one hour prior to the actual tests. It has not been demonstrated, however, that even this small quantity of food might not stimulate further the abnormally high metabolism obtaining in disturbances of the endocrine glands. The authors believe that the sense of euphoria resulting from the warm and satisfying, though light, meal will actually make for less discomfort, less irritability, and ultimately for more accurate basal metabolism measurements.

Blood Curve in Jews and Others.—This study by Morrison and Ohler indicates that race alone is not a factor in the incidence of high blood sugar curves following the glucose test meal. The fact that all the high blood sugar curves in the Jewish group occurred in persons with a nervous or emotional temperament may be significant in the explanation of the prevalence of diabetes mellitus among Jews.

Physical Injury to Working Child.—The question of permitting certain school children to engage in limited kinds of labor has been widely discussed and a general impression has been made that this procedure was necessarily harmful. Rowell analyzed a series of 1,225 cases, in no way selected, which seem to demonstrate that if the situation is adequately handled from a medical point of view, namely, that the unsuitable are eliminated from the tasks for which they are not fitted and working conditions are proper, the child between 14 and 16 in industry can and does consistently gain. The normal growth does not seem to have been arrested by working, in fact, improvement was made and this was often marked. For a number of years the local schools have had increasingly good health work and the pupils have been given unusual opportunity for physical development. On entering employment and on change of jobs, the children are given conscientious physical examinations based on a workable sensible standard, approaching the hospital clinic as closely as possible. Special watchfulness is available where indicated. Rowell says that the question of actual injury to the child of from 14 to 16 as a result of going to work, in permitted selected tasks, is doubtful, and probably largely nonexistent, except in the unusual case. Actual benefit may result instead of damage and this benefit seems to be greatest in those who need it worst.

Colorado Medicine, Denver

20: 117-142 (May) 1923

Suprapubic Prostatectomy in Two Stages; Its Application and Its Fallacies. W. M. Spitzer, Denver.—p. 124.
One Hundred Consecutive Cases of Prostatectomy. O. Lyons, Denver.—p. 127.
*Tumors of Round Ligament. Report of Case. L. V. Sams, Denver.—p. 135.

Tumor of Round Ligament.—The symptoms in Sam's case were a heavy pulling sensation in the lower abdomen, inability to perform the usual duties without unnatural exhaustion, a growth in the abdomen, which had constantly and slowly enlarged for several years, and a light mucopurulent vaginal discharge between menstrual periods which had a very offensive odor, and which caused a mild degree of pruritus. When the abdomen was opened, a tumor mass presented itself, the center of which was slightly to the left of the median line. When it was lifted out, it was found to be attached to but not a part of the uterus. There was no attachment to any pelvic or abdominal organ, except at a point just anterior to the left fallopian tube, and it was at this point only that it was necessary to incise and ligate. After the tumor had been extirpated it could be demonstrated that this growth must have originated in the left round ligament. The tumor proved to be a fibromyxoleiomyoma.

Florida Medical Association Journal, St. Augustine and Jacksonville

9: 176-191 (May) 1923

Carbon Tetrachlorid in Treatment of Hookworm Disease. J. D. Love, Jacksonville.—p. 176.
Chronic Nasal Catarrhs, Their Cause and Cure. A. H. Freeman, Jacksonville.—p. 178.
Primary Carcinoma of Pancreas. J. E. Gammon, Jacksonville.—p. 182.

Georgia Medical Association Journal, Atlanta

12: 133-176 (April) 1923

Teachings of Spencer and Freud as Related to Psychiatry. J. N. Brawner, Atlanta.—p. 133.
*Nonsurgical Treatment of Hemorrhoids in Poor Surgical Risks. M. C. Pruitt, Atlanta.—p. 138.
Diagnostic Errors in Posterior Urethritis and Prostatitis. C. Quarterman, Valdosta.—p. 140.
Reasons for Operations in Early Infancy on Hare-Lip and Cleft-Palate. S. L. Silverman, Atlanta.—p. 143.
Situs Viscerum Transposus or Transposition of Viscera. J. S. Stewart, Jr., Athens.—p. 148.
Manipulation of Stiff Joints. F. G. Hodgson, Atlanta.—p. 150.
*Unusual Case of Ureteral Anomaly. C. H. Watt, Thomasville.—p. 152.
Technic of Nonsurgical Drainage of Gallbladder. G. M. Niles, Atlanta.—p. 155.
Intracutaneous Method of Diagnosis in Asthma and Hay-Fever. H. M. Davison, Atlanta.—p. 157.
Medical Practitioner and American Society for Control of Cancer. J. E. Rush.—p. 162.
Child Health Centers. G. W. H. Cheney, Atlanta.—p. 165.

Nonsurgical Treatment of Hemorrhoids.—Internal hemorrhoids of second and third degree are treated by Pruitt by the injection of a solution composed of 95 per cent. phenol, 1 part; glycerin, 3 parts; water, 4 parts. From 2 to 6 drops, according to the size of the hemorrhoid, is injected into the center of each tumor with a hypodermic syringe, using a sharp 24-gage needle. Not more than two tumors should be injected at one time. One week should elapse before other tumors are injected. This treatment is said to cause little pain, but is followed by considerable swelling of the injected hemorrhoid. When the hemorrhoid is not very large, the patient may go about his work next day. But usually it is necessary to remain in bed for from one to three days after treatment. Pruitt claims to have had a large experience with the method during and since the war. The treatment is said to be especially valuable in that large class of cases in which a general anesthetic is unsatisfactory. Results and mortality compare favorably with those obtained by more radical methods.

Ureteral Anomaly.—In the case cited by Watt the preoperative diagnosis was inguinal hernia; operation disclosed not a hernial sac but an extraperitoneal sac, tubular in shape, admitting two fingers readily, running upward and backward toward the left kidney. It had no evident connection with the bladder. The spermatic cord lay somewhat mesial and posterior to this sac, and appeared normal in every respect. Attached to its posterior wall, but entirely outside, was a small, tubular structure the size of a lead pencil, closely resembling a normal ureter, with one exception, it could not be made to function. The subsequent findings in this case convinced Watt that this sac was unquestionably connected with the left kidney, and that this kidney was useless. There was communication between this sac and the bladder originally, because the fluid excreted by the left kidney was being drained off, although some remained always in the sac. Evidently this was a case of double ureter, one functionless, the other greatly dilated as a result of partial obstruction.

Iowa State Medical Society Journal, Des Moines

13: 221-260 (June) 1923

Methods for Promoting Rapid Healing in Simple Mastoid Operation. L. L. Henninger, Council Bluffs.—p. 224.
Spinal Puncture as an Aid to Diagnosis and Therapeusis. J. F. Herrick, Ottumwa.—p. 226.
Postoperative Treatment of Peritonitis. H. E. Pfeiffer, Cedar Rapids.—p. 229.
Major Infections. W. J. Mayo, Rochester, Minn.—p. 233.
Early and Late Lesions Due to Electric Injuries. O. J. Fay, Des Moines.—p. 239.
Hypertrophy of Prostate. A. Kolodny, Iowa City.—p. 243.

Journal of Cancer Research, Baltimore

7: 229-445 (Oct.) 1922

*Effects of Roentgen Rays and Radioactive Substances on Living Cells and Tissues. L. Loeb, St. Louis.—p. 229.
*Critique of Tumor Resistance. W. H. Woglom, New York.—p. 283.
*Unusual Cardiac and Cerebral Metastases in Melanosarcoma. C. V. Weller, Ann Arbor, Mich.—p. 313.
*Influence of Inorganic Salts on Tumor Growth in Albino Rats. K. Sugiura and S. R. Benedict, New York.—p. 329.
*Relationship of Cellular Differentiation, Fibrosis, Hyalinization and Lymphocytic Infiltration to Postoperative Longevity of Patients with Squamous Cell Epithelioma of Skin and Lip. L. D. Powell, Rochester, Minn.—p. 371.
*Regression of Spontaneous Mammary Carcinoma in Mouse. W. H. Woglom, New York.—p. 379.
*Nucleo-Cytoplasmic Ratio and Cancer. B. Sokoloff, Brussels, Belgium. —p. 395.
*Salt Content of Malignant Tissues. G. L. Rohdenburg and O. F. Krehbiel, New York.—p. 417.

Effect of Radioactive Substances on Cells.—Summarizing his observations Loeb says: We may then conclude that: (*a*) the main effect of radiation on tumors consists in a direct injurious effect of the rays on the tumor cells; (*b*) that, secondarily, host reactions may play a part in holding in check for variable periods of time, or in injuring still further, tumor cells which have been primarily injured by radiation; that, however, results of experiments in which the number of lymphocytes was artificially increased, and an effect obtained in the case of transplanted tumors cannot, as yet, be directly applied to spontaneous tumors in man; (*c*) that radiation in vitro does not in every respect reproduce the conditions prevailing during radiation in the living organism, inasmuch as the physical factors of radiation prevailing in vitro and in vivo differ, and inasmuch as the state of the tissues is not the same during radiation in vitro and in vivo; furthermore, the host contributes to the effects of radiation through contiguous tissue reactions as well as through distant action. Yet, while making due allowance for these complications, there seems to be after all a certain parallelism between the results of the radiation of tumors in vitro and in vivo.

Tumor Resistance.—Because the doctrine of resistance has proved so barren and so inconsistent, it is proposed by Woglom that propagable tumors be investigated from another aspect, and the relation between a tumor and its blood vessels is suggested as perhaps worthy of consideration. The question is raised whether the receding tumor may not differ from the growing one only in the extent to which its blood vessels have been obliterated by thrombosis, and whether every growing tumor may not therefore be potentially a receding one.

Cardiac and Cerebral Metastases in Melanosarcoma.—In a case of diffuse melanotic sarcomatosis in which death occurred two years after mechanical trauma to, and operation on, a pigmented mole, Weller found in the brain a solitary metastasis in the floor of the fourth ventricle, innumerable older cortical and subcortical metastases and a diffuse meningeal sarcomatosis, none of which had influenced the clinical picture in such a manner as to call attention to their existence. The meningeal involvement was exactly like that described for certain cases of alleged primary meningeal melanosarcoma, and throws further doubt on the possibility of such origin. Very numerous myocardial and endocardial metastases were present, producing a relative aortic insufficiency that had been clinically evident.

Influence of Inorganic Salts on Tumor Growth.—The possible therapeutic value of orally administered inorganic salts for the Flexner-Jobling rat carcinoma has been studied by Sugiura and Benedict. The study included thirty-two different inorganic salts. Copper sulphate, arsenic trioxid, potassium carbonate, and calcium chlorid showed a retarding influence on the growth of the tumor, but such action was not marked. Copper sulphate is the most effective agent in this respect, and appears to have some immunizing action against the tumor. Tellurium nitrate and selenic acid have a very marked toxic action on rats; but these compounds show no influence whatever on the proliferating power of the tumor cells. Magnesium carbonate and magnesium chlorid show a slight but distinct accelerating influence on the tumor growth.

Postoperative Life of Epithelioma Patient.—Powell states that the average length of postoperative life of patients with epithelioma of the skin is increased when the factors differentiation, lymphocytic infiltration, fibrosis and hyalinization are present. Postoperative life is increased when any one of these factors or a combination of them is present in the skin. However, this was not true in cases of epithelioma of the lip in the series studied. In these cases, postoperative life was increased when the factors cellular differentiation or lymphocytic infiltration were present; but with the factors fibrosis or hyalinization singly or in combination, postoperative life was decreased. Despite the fact that with fibrosis and hyalinization there was a decrease in postoperative life in the cases of epithelioma of the lip, the presence of all factors checked against the absence of all factors showed an increase of postoperative life. From the data obtained from these cases it would seem that each of these factors should be considered as a defense in cases of malignancy.

Spontaneous Cure of Breast Cancer.—The factor responsible for spontaneous cure of carcinoma Woglom says appears to reside neither in the stroma nor in the parenchyma of the tumor, though the latter cannot be eliminated entirely. By exclusion only the blood vessels remain, but it cannot be shown from the material here discussed that vascular changes underlie spontaneous cure.

Nucleocytoplasmic Ratio and Cancer.—The results of Sokoloff's investigations on the nucleoprotoplasmic ratio strengthens the assumption that malignant tumors are related in their biologic qualities to embryonic cells; that the cells of malignant tumors are in some essentials closely related to embryonic cells, which they resemble in their extraordinary vital activity.

Salt Content of Tumors.—A study of the microchemistry of malignant and benign rat tissue cells is presented by Rohdenburg and Krehbiel. It is shown that demonstrable changes occur in the salt content of the tissues and blood. These changes consist in a demineralization of the blood and tissue cells on the parenteral introduction of living cells irrespective of their type, with an increase of the mineral content of the growing cells. A further study shows that on the death and absorption of the cells they give up their mineral content which again is rapidly taken up by the body tissues and the blood. There also occur disturbances in the ratios existing between the various salts. These changes in the salt metabolism do not apparently influence the origin of neoplasms, nor have they any demonstrable effect on immunity against the transplantation of rat and mouse tumors, nor do they cause such transplanted tumors to recede. It is, therefore, probable that the changes observed are secondary to cell growth and death, and bear no relationship to the biologic character of the cells which grow or die.

Journal of Immunology, Baltimore

8: 163-238 (May) 1923

Classification of Phenomena of Hypersensitiveness. A. F. Coca and R. A. Cooke, New York.—p. 163.
*Toxicity of Human Blood Plasma for Guinea-Pigs. III. Toxicity of Human Blood Plasma in Various Stages of Pulmonary Tuberculosis. S. A. Levinson, Chicago.—p. 183.
Hepatic Reactions in Anaphylaxis. IV. Dominant Reacting Tissues in Peptone Shock. W. H. Manwaring, W. S. Clark and R. C. Chilcote, Stanford University, Calif.—p. 191.
Serologic Factors of Natural Resistance in Animals on Deficient Diet. G. H. Smith and I. M. Wason, New Haven, Conn.—p. 195.
Biologic Reactions of Roentgen Rays. Effect of Roentgen Rays on Rates of Specific Hemolysis. K. F. Cori and G. W. Pucher, Buffalo. —p. 201.
Hepatic Reactions in Anaphylaxis. V. Mechanism of Increased Hepatic Resistance During Canine Peptone Shock. W. H. Manwaring, W. O. French and S. Brill, Stanford University, Calif.—p. 211.
Hepatic Reactions in Anaphylaxis. VI. Histamine Reactions in Isolated Canine Tissues. W. H. Manwaring, R. E. Monaco and H. D. Marino, Stanford University, Calif.—p. 217.
Zone Phenomena in Complement Fixation with "Residue" Antigens. J. T. Parker, New York.—p. 223.
Hepatic Reactions in Anaphylaxis. VII. Quantitative Changes in Hepatic Parenchyma During Canine Peptone Shock. W. H. Manwaring, H. M. Hosepian and A. C. Beattie, Stanford University, Calif.—p. 229.
Id. VIII. Anaphylactic Reactions in Isolated Canine Organs. W. H. Manwaring, R. C. Chilcote and V. M. Hosepian, Stanford University, Calif.—p. 233.

Toxicity of Blood of Tuberculous.—As a result of tabulating the findings in the various stages of activity, Levinson says it appears that the suspension stability of the blood in pulmonary tuberculosis parallels the activity of the process. With an increase in the pulse rate and temperature, there is also an increase in the sedimentation rate of erythrocytes. The toxicity of the blood plasma in pulmonary tuberculosis is also increased for the guinea-pig. The pulse, temperature, suspension stability of erythrocytes, and toxicity of the blood plasma are parallel with each other.

Kentucky Medical Journal, Bowling Green

21: 213-262 (May) 1923

Gastric and Duodenal Ulcer. R. M. Evans, Louisville.—p. 214.
Rectum in Its Relation to Digestive Disorders. B. Asman, Louisville.—p. 222.
Huntington's Chorea in Montgomery County. S. See, Mt. Sterling.—p. 226.
Fibroma of Nasopharynx. S. G. Dabney, Louisville.—p. 228.
Etiologic Factors of Retrobulbar Neuritis. C. T. Wolfe, Louisville.—p. 229.
Typhoid Fever. W. F. Nichols, Mumfordville.—p. 232.
Trachoma. G. W. Payne, Bardwell.—p. 238.
Indictment Against Clark County Medical Society. S. J. Rose, Winchester.—p. 239.
Embolic Gangrene of Forearm and Hand. J. G. Sherrill, Louisville.—p. 240.
Myositis, Suppurative, Circumscribed Acute of Abdominal Wall. P. C. Layne, Ashland.—p. 243.
Cancer Propaganda. A. H. Barkley, Lexington.—p. 245.
Testing Value of Antiseptics. C. C. Howard.—p. 246.
Cysts of Spleen, Splenectomy, Report of Case. W. L. Gambill, Ashland.—p. 247.
Lincoln County Memorial Hospital. J. G. Carpenter, Stanford.—p. 250.
Management of Complications Following Cataract Extraction. A. L. Bass, Louisville.—p. 252.
Value of Enterostomy in Surgery. F. W. Rankin, Louisville.—p. 256.

Maine Medical Association Journal, Portland

13: 237-264 (May) 1923

Reports of Annual Meeting.—pp. 237-259.

Mental Hygiene, Albany, N. Y.

7: 225-448 (April) 1923

Some Aspects of Education and Training in Relation to Mental Disorder. M. Craig.—p. 225.
Mental Tests of Superior Child. H. D. Dvorak, Minneapolis.—p. 250.
Mental Hygiene and Our Universities. A. W. Morrison.—p. 258.
Reaction of College Students to Mental Hygiene. D. A. Laird.—p. 271.
Nonspecificity of Mental Disease. E. A. Strecker.—p. 277.
Relationship Between Religious Experience and Mental Disorders. A. T. Boisen.—p. 307.
Community Aspects of Feeblemindedness. G. Hamilton, New York.—p. 312.
What Pennsylvania Village Has Demonstrated. M. M. Wolfe, Laurelton.—p. 339.
Jewish Mind in Making. A Layman's Essay in Mental Hygiene. E. M. Friedman, New York.—p. 345.
Commitment Procedure and State Hospital. H. S. Whisman.—p. 357.
Use of Traveling Clinic in Scheme for Neuropsychiatric Examination of School Children. F. G. Ebaugh, Philadelphia.—p. 365.

Missouri State Medical Association Journal, St. Louis

20: 185-214 (June) 1923

*Upper Intestinal Tract Obstruction: Chemical Studies and Indications for Treatment. R. L. Haden and T. G. Orr, Kansas City, Mo.—p. 185.
*Amebic Infection of Liver. J. W. Larimore, St. Louis.—p. 190.
Cancer of Prostate: Diagnosis and Treatment. J. E. Burns, Kansas City.—p. 191.
Clinical History and Serial Plate Examinations in Differential Roentgen-Ray Diagnosis of Inflammatory Lesions of Chest. L. R. Sante, St. Louis.—p. 194.
Infection and Resistance in Tuberculosis. S. Simon, St. Louis.—p. 198.
Résumé of Symptoms and Signs of Principal Endocrin Disturbances. O. P. J. Falk, St. Louis.—p. 201.

Upper Intestinal Tract Obstruction Cause Changes in Blood Chemistry.—Following pyloric or upper intestinal tract obstruction Haden and Orr found a rapid fall in the chlorids of the blood and a rise in the carbon combining power of the plasma. Later there was a rise in the nonprotein nitrogen and urea nitrogen. The rise in the alkali reserve, as evidenced by the increase in carbon dioxid combining power of the plasma, is an incident in the chlorid metabolism. The chlorin combines with the toxic body or bodies, probably in the form of the hydrochlorid, and the sodium combines with carbonic acid to form sodium bicarbonate. The rôle of the chlorids seems essentially protective, neutralizing, or antitoxic. Sodium chlorid is very effective in treating the toxemia of intestinal obstruction. If given at the onset of the obstruction the rise in nitrogen may not occur. If given after the rise in nitrogen has begun, a rapid fall usually takes place. Since there is practically always a heightened alkali reserve, alkalis should not be given.

Amebic Infection of Liver.—In Larimore's case the acute symptoms supervened after the infection had been latent for thirty years.

Philippine Islands Medical Association Journal, Manila

3: 59-116 (March-April) 1923

Fatal Case of Centipede Bite. E. V. Pineda.—p. 59.
Introduction to Course of Lectures on History of Medicine. F. H. Garrison.—p. 62.
*Congenital Mesenteric Aperture Causing Volvulus. M. P. Mendoza-Guazon.—p. 67.
Polymastia; Report of Case. T. D. Fabiana and T. G. Orr, Kansas City, Mo.—p. 70.
Significance and Prevalence of Intestinal Animal Parasites in American and European Adults and Children in Philippines. F. G. Haughwout.—p. 72.
*Spinal Percussion in Diagnosis of Certain Intrathoracic Diseases. W. J. B. Burke, Manila, P. I.—p. 78.

Congenital Mesenteric Aperture Causing Volvulus.—The case reported by Mendoza-Guazon is the only one that occurred in 9,700 necropsies in the city morgue of Manila. The symptoms had been severe abdominal pain, which was relieved by hot drinks and hot applications on the abdomen. In the mesentery of the ileocecal region was a hole about 2 cm. in diameter through which a small coil of the distal portion of the ileum, measuring 70 cm. in length, had passed toward the left side of the abdomen. Another, larger coil of intestine, 130 cm. in length, continuous with the proximal end of the first coil, had entered the same opening toward the right side. The proximal end of this was continuous with the jejunum. In the mesentery of these two coils was a large gap, the edges of which were smooth and covered by peritoneum. There really was but one large aperture in the mesentery of the jejunum and ileum. Its greatest diameter measured 22 cm. It was congenital, as could be recognized by the continuity of the peritoneum of the border of the aperture, by the course of the blood vessels in the mesentery, and by the absence of the triangular lesion so characteristic in obstructions of the mesenteric arteries. It had caused complete obstruction of the small intestine by the herniation of the distal coil of the ileum through the aperture formed by the twisting of the proximal loop of ileum and jejunum.

Spinal Percussion; Aid in Diagnosis of Inthrathoracic Disease.—This method of percussion was first described by Signorelli in 1904. Signorelli called attention to the fact that if a normal person sits with the shoulders bent forward and the spinous processes of the first eight dorsal vertebrae are percussed firmly, a finger of the left hand being interposed between the percussing finger and the patient, the first four vertebrae give a clear, high pulmonary sound, not very intense, while the remainder of the vertebrae give a deep and more intense sound. The procedure consists, according to him, in comparing the sounds obtained by percussing each vertebrae with those obtained by percussing the other vertebrae and the back of the thorax. The deficiency of resonance of which he speaks is relative. Thus, if the first six dorsal vertebrae give the same sound, he concludes that there is a deficiency of resonance over the fifth and sixth vertebrae. Burke points out that if the vertebrae are only percussed firmly, as Signorelli advises, many important differences of resonance would be missed. His experience has taught him that in some cases the percussion must be light.

U. S. Naval Medical Bulletin, Washington, D. C.

18: 417-544 (April) 1923

Glandular Therapy and Body Growth. D. N. Carpenter.—p. 417.
Sanitation in American Samoa. D. Hunt.—p. 438.
Malingering: Pretended Blindness. J. I. Kurtz.—p. 449.
Diagnosis and Treatment of Syphilis. W. H. Connor.—p. 456.
Medical and Other Aspects of Earthquake and Tidal Wave in Chile, November, 1922. E. A. Stephens and J. F. Terrell.—p. 462.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

1: 321-352 (April) 1923

Congenital Idiopathic Dilatation of Colon. D. Firth and K. Playfair.—p. 321.
Further Developments in Spectrometric Method of March, Staunig and Fritz, for Determination of Quality of Roentgen Rays. K. Staunig.—p. 328.
Pyelography. J. Thomson-Walker.—p. 334.
Dislocation of Upper End of Fibula Forward without Fracture of Tibia or Fibula. R. H. Sankey.—p. 344.

British Journal of Tuberculosis, London

17: 59-106 (April) 1923

Recent Developments in Work of Welsh National Memorial Association. S. L. Cummins.—p. 59.
Tuberculosis Work of Metropolitan Asylums Board. J. Watt.—p. 69.
Common Shibboleths and Sayings Connected with Pulmonary Tuberculosis. B. Hudson.—p. 71.
Types of Tubercle Bacilli Concerned in Surgical Tuberculosis. G. R. Girdlestone.—p. 74.

British Medical Journal, London

1: 887-918 (May 26) 1923

*Pathogenesis of Rickets. E. Pritchard.—p. 887.
*Nephroptosis: Its Causation, Symptoms and Radical Cure. J. J. Bell.—p. 889.
*Radial Pulse in Intrathoracic Aneurysms. C. O. Hawthorne.—p. 892.
*Nature of Blood Sugar. L. B. Winter and W. Smith.—p. 894.
Treatment of General Paralysis by Malaria. W. L. Templeton.—p. 895.
Small Epidemic of Plague. E. N. Chamberlain.—p. 896.
Treatment of Pneumonia. J. T. Maclachlan.—p. 897.
Upper Canine Tooth in Antrum of Highmore. J. H. Pegg.—p. 897.

Pathogenesis of Rickets.—In Pritchard's opinion, the essential basis, or the causa vera, of rickets is most probably a relative excess of acid bodies produced in the system by a disproportion between the intake and the output of energy—a condition which results either from an innate inefficiency of the body machine itself, or from defects in the environment, the latter being regarded as including the quantity and the quality of the food as well as the character of the stimuli afforded by the hygienic surroundings.

Nephroptosis.—Bell is convinced that the too early employment of girls in occupations causing long standing and weight carrying is an important causative factor of movable kidney. Pregnancy he regards as being a negligible factor. Accident, physical strain, etc., are held also to be infrequent causes. Nephropexy is advocated as being the only available treatment. Bell says he has never seen a case in which a belt gave relief, in fact there has never been invented a belt, capable of keeping a dropped kidney in its place, which could be tolerated by the patient. Its pressure would ulcerate the skin in less than a week. He employs Fullerton's operation consisting of raising a tongue-shaped flap of capsule from the back of the kidney, passing this through the external arcuate ligament, drawing the kidney up into position and stitching the suspension flap to the capsule below.

Radial Pulse in Intrathoracic Aneurysms.—A record is submitted by Hawthorne which is said to be a demonstration of actual pulse delay in the left radial artery as compared with the time incidence of the right radial. The tracings were obtained from a case of intrathoracic aneurysm. The diagnosis is beyond question, for a postmortem examination revealed a fusiform aneurysm of the aortic arch extending beyond the origin of the left subclavian artery. The wall of the aneurysm showed but little fibrinous deposit, and doubtless, therefore, during life, the sac responded freely to the alternate rise and fall of blood pressure determined, respectively, by the systole and diastole of the left ventricle. The aneurysm was an elastic bag placed in the course of the circulation between the left ventricle and the left radial artery. Hawthorne states that such an arrangement might on the face of it suggest a delay in the arrival of the pulse wave at the left wrist as compared with the time occupied by the passage of the wave along the arterial trunks of the opposite limb.

Nature of Blood Sugar.—Winter and Smith submit that there is definite evidence that a reactive sugar is present in the blood. There is no chemical evidence that gamma glucose is formed in the body. There is definite evidence that some of the blood sugar of diabetics is fundamentally different from that of normal persons. No evidence at present exists that the intestine plays an essential part in the causation of this difference.

1: 919-958 (June 2) 1923

*Prevention of Heart Disease. F. J. Poynton.—p. 919.
*Economic Aspect of Heart Disease. R. O. Moon.—p. 922.
Acute Pansinusitis. St. C. Thomson.—p. 924.
Optic Neuritis of Sphenoidal Sinus Origin; Operation; Cure. St. C. Thomson.—p. 925.
*Cyst of Right Suprarenal Removed by Operation. H. A. Ballance.—p. 926.
Early and Curable Disease of Breast. G. L. Cheattle.—p. 928.
Case of Polythelia. R. D. Howat.—p. 928.
Acute Edema of Lungs. V. Moxey.—p. 929.
Sinus Thrombosis Following Pneumonia in an Adult. E. W. Hurst.—p. 929.
Atrophy of Skin After Poliomyelitis. A. R. Fox.—p. 930.
Rupture of Peri-anal Skin Caused by Fall on Feet. E. W. Nason.—p. 930.

Prevention of Heart Disease.—The possibility of preventive measures against heart disease is discussed by Poynton. The weak points in the present management of heart disease in childhood he believes to be: imperfection in medical education; public ignorance; neglect of chorea; lack of an auxiliary country hospital with a special department for cardiac children; lack of a schedule of suitable occupations for cardiac children; lack of a central bureau for purposes of organization, and of an institution for research into and the study of rheumatism. The importance of discrete treatment of local foci is emphasized. With prolonged and skilfully managed convalescence there should be great improvement in results with the most important group of all cases—the first attacks of rheumatic carditis. With proper organization one should get hold of the cases with recurrent attacks more easily and give them also a much better chance of recovery. Physicians should learn to prevent much chorea, and should learn much more about the life history of the rheumatic child, and thus prevent may breakdowns during school life. All this would be the more valuable because the incidence of cardiac rheumatism is greater in the first fourteen years of life than at any other period.

Economic Aspect of Heart Disease.—The exercises applied in the convalescent-reconstructive stages of heart disease, Moon points out, have three main purposes: (1) To improve the general condition (nutritional, muscular, and organic); (2) to increase the cardiac reserve power; (3) to lessen the introspective and neurotic tendencies, for the psychoneurotic element is very important in many forms of heart disease. It is a good thing for the exercises to stimulate and merge into every-day physical and social activities. Though formal gymnastics are helpful in inspiring courage and getting hold of the mild slacker and neurasthenic, after six years' observation of 3,000 heart convalescents, no regimen has given such all-round satisfaction, safety and success as the old farm regimen where a total of nearly 500 cardiacs, boys and young men were given essential freedom of play and work—of course, under reasonable regulations of rest, etc. Dancing has been found to be a most useful exercise; it certainly ranks high in mental therapeutics. Convalescent cardiac patients with but a moderate degree of cardiac reserve may begin cautiously to dance and then go on to considerable indulgence with safety and benefit. Patients are often under the impression that dancing is necessarily a strenuous and exhausting exercise, whereas short period dancing, shuffling with little weight lifting, is one of the mildest exertions. Dancing gives an additional and readily available test of the cardiac reserve and of progress. Among all the thousands of dancers there have only been twenty collapses or partial faints, and these were found to be mainly hysterical or neurotic.

Cyst of Suprarenal.—Ballance cites the case of a woman, aged 49, who for many years had suffered from "indigestion." The trouble had been much worse for the last five years and was mainly characterized by pain in the back passing around the waist to the epigastrium. The pain had no relation to meals, and would often come on at night, when a little food would bring relief. For six weeks there had been frequent vomiting. There had never been hematemesis. Constipation

had been very troublesome. The stomach was distended and visible peristalsis was present; there was no tenderness anywhere and no tumor could be felt. A roentgen-ray examination showed that even after eight and a half hours a bismuth feed had not entirely left the stomach. The abdomen was opened, and an old ulcer of the first part of the duodenum, just beyond the pylorus, almost encircling the bowel and narrowing it, was found. A large cystic tumor was found in the right hypochondrium, occupying the concavity of the diaphragm and pushing the liver to the left and downward. The kidney was displaced downward, but the cyst was only slightly attached to the upper pole of this organ. At the conclusion of the gastrojejunostomy it was deemed advisable to defer the removal of the cyst. Three months later the patient was again seen, as she had been complaining of distention and sense of pressure in the right loin. A large, smooth, ill-defined swelling could be detected coming down from under the right costal margin on inspiration, and the right kidney was felt in the iliac fossa. An incision was made below the twelfth rib. The cyst previously seen was exposed and separated from the kidney. A very large cavity was left, occupying the arch of the diaphragm behind the peritoneum, which was not opened. The cyst contained 2½ pints of thin, amber colored, odorless, turbid fluid, which was neutral in reaction and became solid on boiling, owing to its albuminous contents. Section of the cyst wall showed suprarenal cortical cells embedded in its outer half.

1: 959-1004 (June 9) 1923

Activity of Capillary Blood Vessels; Relation to Certain Forms of Toxemia. H. H. Dale.—p. 959.
*Limitation of Effort in Heart Disease. C. Wilson.—p. 962.
*Influence of Thyroid on Response to Epinephrin. D. M. Lyon.—p. 466.
*Rectal Papilloma in Schistosoma Haematobium Infestations. H. C. Sinderson and E. A. Mills.—p. 968.
Two Loop Button Suture. W. G. Spencer.—p. 969.
*Herpes Zoster with Localized Muscular Paralysis. C. Worster-Drought.—p. 970.

Limitation of Effort in Heart Disease.—People sometimes die suddenly of heart disease who have never had a symptom, and some such cases have been examined within a few months or weeks of death by the ordinary methods without any abnormal sign being discovered, or anything to suggest that an examination by electrocardiograph was indicated. Wilson has seen many sudden deaths from heart disease, but only two of this kind in which a necropsy was made. In one case there was a ruptured aneurysm of the left ventricle, while the other showed degenerated heart wall, especially on the right side. A second source of error is that occasionally patients live for years whose early death is predicted. When the stethoscope had revealed the various heart sounds, and their meaning became gradually elucidated, conclusions based on the integrity of the valves dominated cardiology for many decades and led to views many of which are today discredited. With the advent of the polygraph and the electrocardiograph, the myocardium has come into its own, and it now dominates. Each case must be looked at all around; no single sign should be given undue weight; but if there is any one point which may be allowed to override the others it is the one to which least attention is often paid—and that is the physiologic capacity of the heart, as proved, not so much by set tests, as by careful inquiries and cautious experiment as to the individual patient's capacity for effort in the ordinary calls of life.

Influence of Thyroid on Response to Epinephrin.—In a comparison of the metabolic and cardiovascular responses to the injection of epinephrin in patients having similar basal metabolic rates, Lyon says no relationship between the reactions is obvious. If individuals are examined on different occasions when their metabolic rates have altered, a change in the degree of response to epinephrin is noticed. Administration of thyroid leads to an exaggeration of the reaction to epinephrin. In cases of exophthalmic goiter, a fall in basal metabolic rate is not accompanied by a very great reduction in the sensitiveness to epinephrin, and it is suggested that this depends on a persisting hypertonus of the sympathetic system.

Schistosoma Hematobium Causes Rectal Papilloma.—The case cited by Sinderson and Mills would appear to prove the ability of *Schistosoma haematobium* to produce rectal papillomata. The fact that after very careful search no trematode ova other than those of *S. haematobium* have been found in the urine, feces, and tissues, the authors believe to be fairly conclusive evidence of a further and previously unproved infestation with *S. haematobium*.

Herpes Zoster with Localized Muscular Paralysis.—Worster-Drought records a case of a typical attack of herpes zoster affecting the area of the twelfth thoracic nerve which was followed twelve days after the appearance of the herpetic eruption by paralysis of the muscles in the lower part of the abdominal wall of the same side.

Journal of Biochemistry, Tokío

2: 369-546 (April) 1923

Lipoids in Placenta in Each Month of Pregnancy; Especially Quantitatively. H. Watanabe.—p. 369.
Autolysis of Pancreatic Juice. K. Nagai.—p. 399.
Purin Metabolism. III. Muscle as Source of Endogenous Purin. M. Kikuchi.—p. 409.
Biologic Study of Organic Bases. I. Organic Bases in Normal Urine. S. Toda.—p. 417.
Id. II. Organic Bases in Extractives of Vegetable and Animal Food Stuffs. S. Toda.—pp. 425, 429, 433.
Composition of Urinary Calculi. H. Nakano.—p. 437.
Glycolytic Action of Blood. II. Experiment with Phosphate Mixture in Warm-Blooded. K. Fukushima.—p. 447.
Id. III. Experiment with Citrate Mixture in Cold-Blooded. K. Fukushima.—p. 455.
New Derivatives of Fucose. T. Tadokoro and Y. Nakamura.—p. 461.
Determination of Ammonia in Blood. M. Hara.—p. 473.
Surface Activity of Colloids in Pathologic Urine. M. Takeda.—p. 479.
Acid-proof Staining Property of Cephalin. R. Koganei.—p. 495.
Interaction Between Heavy Metal Salt and Protein. K. Kodama.—p. 505.
Effect on Membrane Osmosis by Salt Present in Solvent. J. Umezawa.—p. 525.

Lancet, London

1: 1039-1090 (May 26) 1923

Diabetes and Glycosuria; Insulin Treatment. H. Maclean.—p. 1039.
*Mode of Action of Vitamins. W. Cramer.—p. 1046.
*Treatment of Auricular Fibrillation by Quinidin Sulphate. J. G. Emanuel.—p. 1050.
*Analysis of One Hundred Human Fetuses. M. F. L. Keene and E. E. Hewer.—p. 1054.
Case of Recurrent Suppurative Frontal Sinus Disease. E. Watson-Williams.—p. 1056.
Direct and Indirect Inguinal Hernia on Same Side. H. Griffiths.—p. 1056.
Leukemia in Monkey. A. C. Massaglia.—p. 1056.
Acute Polio-encephalitis in Infancy, Associated with Glycosuria. T. P. Williams.—p. 1057.

Action of Vitamins.—From observations on the pathologic lesions induced by vitamin deficiencies, Cramer says, a mass of evidence has gradually accumulated which points to the digestive tract as the key to the problem of the mode of action of these food accessory substances. The functional integrity of the digestive tract is dependent on the presence in the food of certain substances with specific druglike actions, very much in the same way as the functional integrity of the uterus is dependent on a hormone produced by the ovary. These accessory food substances may, therefore, be regarded as "food hormones." Two groups with different specific actions can at present be distinguished—one group (now called the water soluble vitamin B) has a specific stimulating effect on lymphoid tissue. The other group (now called the fat soluble vitamin A) has a specific stimulating effect on the intestinal mucous membrane, and also directly or indirectly on the formation of blood platelets. These specific effects afford an adequate explanation of the general changes produced in an animal by restricting or completely withholding vitamins from the food. An interesting relationship is thus brought out between an animal and its environment; the food itself contains specific substances on which the integrity of the apparatus responsible for the digestion and absorption of food depends. The therapeutic applications following from this conception are briefly discussed.

Quinidin Sulphate in Auricular Fibrillation.—For the treatment of cardiac failure with auricular fibrillation, Emanuel regards digitalis a specific remedy and quinidin an invaluable coadjutor.

Tentorial Tears in Fetuses.—Taking the full-time and premature fetuses together, Keene and Hewer found that, in 100 of these, tentorial tears with subdural hemorrhage occurred

in 6 per cent., tentorial tears alone in 2 per cent. and subdural hemorrhage only in 11 per cent. These figures are strikingly lower than those obtained by Eardly Holland, who gave the incidence of these tears as 48 per cent.

Medical Journal of Australia, Sydney

1: 463-486 (April 28) 1923

Radium Therapy. Experimental Research Work, Including Death, Retardation of Growth, Prolongation of Life, Determination of Sex, Sterilization and Artificial Parthenogenesis Reproduction without Male. H. Lawrence.—p. 463.
Pioneer Australian Surgeon (Richard Harris) and His Times. N. J. Dunlop.—p. 472.
Bilateral Detachment of Retina in Nephritis of Pregnancy; Reattachment of Retina. M. Gardner.—p. 477.

Naval Medical Association Bulletin, Tokyo, Japan

No. 38, 11-21 (Feb.) 1923

Standard Ration in Victualling Regulation of Japanese Navy. S. Sakaguchi.—p. 11.
Choice of Immunity Reaction in Determination of Cholera Vibrio. T. Kabeshima.—p. 18.
Studies on Nature of Cholera Vibrio, Isolated from Number of Cases, Which Occurred in Fukuoka, 1922. T. Kabeshima.—p. 19.

South African Medical Record, Cape Town

21: 169-192 (April 28) 1923

Depolarizing Words. E. G. Dru-Drury.—p. 171.
Jaundice. Some Recent Cases. C. F. M. Saint.—p. 178.
Use of Simple Cow's Milk Mixtures in Infant Feeding E. P. Baumann.—p. 182.

Bulletin Médical, Paris

37: 505-535 (May 5) 1923

*Roentgenography of Chronic Constipation. L. Gally.—p. 513.
*Echo Pruritus. P. Jourdanet.—p. 516.

Radiology of Chronic Constipation.—Gally's experience as radiologist at the Laennec Hospital teaches that the radiologist's task is merely to present the evidence on the shape, situation, movements, manner and duration of transit and evacuation of the gastro-intestinal tract, with the aid of a single or double contrast meal, supplemented by a contrast enema for the large intestine. "How many false trails have been followed because the radiologist neglected details and suggested at once a snapshot diagnosis, which the physician is eager to accept."

The "Pruritus Echo."—Jourdanet offers as another contribution to our knowledge of the involuntary nervous system a description of the phenomenon which he calls *repercussivité prurituque:* When an itching region is lightly scratched, another point, sometimes quite remote, begins to itch likewise. These points of this echo reflex itching are always on the same side, and appear each time at the same point. It is something like the motor phenomenon of the pilomotor reflex.

37: 536-565 (May 12) 1923

*Transfusion of Blood. P. Emile-Weil and Isch-Wall.—p. 543.

37: 566-611 (May 19) 1923

Treatment of Diabetes with Insulin. Chabanier, et al.—p. 579.

Mishaps with Transfusion of Blood.—Weil and Wall survey international experience in this line, and emphasize the essential difference between the immediate disturbances from the presence of hemolysins or agglutinins in the blood of the recipient, and later disturbances which are comparable to the phenomena of an upset in colloidal balance. These may be observed even when both parties belong to the same group.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 531-548 (April 13) 1923

*Bronchitic Ictus and Oculocardiac Reflex. A. Sézary.—p. 531.
Gigantism and Tall Growth. R. Benard.—p. 534.
*Rabies Three Years After Dog Bite. Dumitresco-Mante.—p. 542.
*Therapeutic Pneumopericardium. M. Castex.—p. 545.

Bronchitic Ictus and Oculocardiac Reflex.—Sézary reports the history of a man who had been gassed and subsequently suffered from bronchitis and attacks of unconsciousness following cough. The oculocardiac reflex was strong. The attacks disappeared after treatment with belladonna, but the exaggeration of the oculocardiac reflex persisted.

Death from Lyssa in a Vaccinated Patient Three Years After the Bite.—Dumitresco-Mante reports the history of a patient who was bitten by a rabid dog and died from rabies three years and a few days later. He had been given prophylactic Pasteur treatment at once after the bite.

Therapeutic Pneumopericardium.—Castex reports a case of tuberculous pleuritis and pericarditis treated by punctures and insufflations of oxygen. His patient was a woman, aged 25, much improved by his measures.

Journal de Médecine de Bordeaux

95: 303-340 (May 10) 1923

*Gastric Surgery. Charrier and Charbonnel.—p. 303.
*Pleural Shock with Artificial Pneumothorax. Leuret and Fontan.—p. 314.
Shock After Injection of French Arsenical. Bouyer.—p. 320.

Ultimate Results After Gastrectomy; Thirteen Cases.—Charrier and Charbonnel had a mortality of 23 per cent. in their gastrectomies for cancers and ulcers, showing this operation to be less dangerous than generally considered. Gastric cancer is generally too far advanced for gastrectomy to be permanently successful. Necropsy of a patient who died from acute dilatation of the stomach soon after pylorectomy, showed that the stomach was distended with gas alone, the new outlet obstructed. The acute dilatation had occurred from inflammatory paresis and aerophagia alone: The mechanical theory of postoperative dilatation from compression of the duodenum does not apply to this case as the duodenum had been excluded. This shows the part played by aerophagia and inflammatory paresis in the pathogenesis of acute dilation of the stomach, so frequently attributed to mechanical causes. They describe in detail nine operations for cancer, with a mortality of 21 per cent. While the effects of gastro-enterostomy last only a few months, gastrectomy brings new life to the patient.

Pleural Shock During Artificial Pneumothorax.—Leuret and Fontan report 2 cases in which the injection of 30 or 50 c.c. of air induced shock: In one, a short, incomplete shock of benign nature; in the other, of the type of status epilepticus, terminating by death in sixty-two hours. Both patients had been very apprehensive. Of 86 observations of pleural shock collected by Cestan, 34 were of the convulsive type, as were 31 of Cordier's 81 cases. Typically, the convulsion resembled an epileptic seizure in every way. Preliminary injection of morphin does not prevent the attack, though it may be useful in a nervous patient. Mental preparation is necessary, especially in the emotional patient. No gas must be injected unless the manometer indicates the large oscillations of the pleural pressure, which is negative.

Paris Médical

13: 301-336 (April 7) 1923

Digestive Pathology in 1923. Carnot and Gaehlinger.—p. 301.
*Early Diagnosis of Gastric Cancer. A. Cade.—p. 313.
*Remote Results of Gastrectomy. G. Lion.—p. 319.
Radioscopy of the Duodenum. Guénaux and Vasselle.—p. 323.
*Lowering the Colon to the Anal Sphincter. G. Picot.—p. 329.
Misleading Roentgenograms of the Stomach. Timbal.—p. 333.

Early Diagnosis of Cancer of the Stomach and Intestines, Exclusive of the Rectum.—Cade says that the first sign of cancer of the stomach is the irregular and capricious appetite and finally the total loss of appetite. According to Brinton, this occurs in 85 per cent. of the cases, but anorexia is not inevitable, especially in young cancer patients. The aversion to food may be so decided as to make swallowing impossible. Indifference to tobacco in a smoker is sometimes the first symptom of a growth in the stomach. Common dyspeptic symptoms frequently accompany the loss of appetite, and their rebellious persistence attracts attention. Loeper's method of gastric cytodiagnosis is recommended: The residual contents of the fasting stomach are aspirated, then the stomach is washed with 250 c.c. boiled water, which is aspirated, and a second washing made with 250 c.c. physiologic salt solution. This is centrifuged, and the cellular elements of the sediment thus obtained are examined according to Widal's pleural cytodiagnostic method. Abundance of leukocytes indicates gastric inflammation. Red corpuscles are frequently found, especially when there is ulceration. But more characteristic are the large polyhedral, thick cells, taking stains well, and forming clumps of four or five elements of which the large

nuclei, sometimes double or triple, may show cell division. Like other biologic methods of diagnosis, negative results are indecisive.

Remote Results of Gastrectomy for Cancer of the Stomach.—Lion studied the results of 41 gastrectomies for cancer, performed during the period 1903 to 1919, and found that 16, or 39 per cent., died from the operation. Of the 25 surviving, 6 died during the first, 6 during the second, and 2 during the third year. Eleven survived more than four years, but 6 had recurrences and died, while of the 5 now living, 3 had the operation five years ago, 1 nine years, and 1 four years and three months ago. He compares these results with those of 49 gastro-enterostomies, with mortality rate of 20.4 per cent., but among whom, excluding all cases in which the cancer was not diagnosed from necropsy, or macroscopic and microscopic examination, he found only 6 cases with survival of from two to five years. He characterizes gastro-enterostomy as a purely palliative intervention for stenosis of the pylorus only, with the benefits lasting at most from six or eight months to two years.

Drawing Down the Colon to the Anal Sphincter After Removal of Cancerous Rectum.—Picot recommends colostomy before removal of the rectum, in order to avoid fecal retention and infection and to facilitate the coming operation. This preliminary intervention enables exploration of the cancer and of the length and movability of the pelvic colon. It is very important to keep the left colon movable, and hence the artificial anus should be made on the right side. Colostomy on the ascending colon can be made so as to secure total evacuation of the feces.

Presse Médicale, Paris

31: 485-492 (May 30) 1923

*Acute Orchitis in Children. A. Mouchet.—p. 485.
A New Ethyl Anesthetic. A. Lecerf.—p. 486.

Acute Orchitis in Children.—Mouchet's experience has confirmed that torsion of the testicle is often responsible for the clinical picture of acute epididymitis and orchitis in boys. He has had to operate for this cause in five cases in less than two years. In two of the boys the symptoms were less severe, and the operation revealed torsion of the hydatid of Morgagni instead of the testis.

31: 493-504 (June 2) 1923

*Iodized Oil in Roentgen Examination. Sicard and Forestier.—p. 493.
*Intraspinal Treatment of Epidemic Encephalitis. Roch.—p. 496.
*Papaverin in Differential Diagnosis. L. Cheinisse.—p. 498.

Iodized Oil for Contrast in Roentgenology.—Sicard and Forestier reproduce sixteen roentgenograms taken after injection of iodized oil. The tissues seem to tolerate this substance perfectly, and it allows roentgen-ray examination of the subarachnoid and epidural spaces and of the bronchi and lungs—cavities previously inaccessible to such exploration. The preparation he uses is said to be an organic combination of iodin with oil; 0.54 gm. of iodin per cubic centimeter. It spreads by gravity, and the black discoloration persists for months or years.

Intraspinal Injection of Casein in Treatment of Epidemic Encephalitis.—Roch bases this treatment of encephalitis on the assumption that inflammation of the meninges renders them more permeable. He hoped that this would allow access to drugs and antibodies in the blood stream which otherwise are unable to pass this barrier into the brain. He aimed to induce an aseptic meningitis, and found a 1:1,000 solution of casein in normal saline convenient for the purpose. In three cases of long chronic parkinsonian syndromes after encephalitis, no benefit was apparent, but they confirmed his theoretical premises, and in two out of four cases of recent epidemic encephalitis, recovery was soon complete. He asks, "Was this coincidence or effect?" Even lumbar puncture alone aids in promoting the flow of fluids from the blood into the cerebrospinal cavities.

Papaverin in Differential Diagnosis.—Cheinisse quotes Frigyér and others who have demonstrated that papaverin reduces the blood pressure in the absence of organic disease of the heart, vessels and kidneys. Hence in dubious cases of high blood pressure, a decline after subcutaneous injection of 0.20 or 0.24 gm. of papaverin is a sign that organic factors are not involved. By the mouth, the test requires 0.3 or 0.5 gm., fractioned during the day. A slight narcotic effect is a sign that the proper dose has been given.

Revue Franç. de Gynécologie et d' Obstét., Paris

18: 177-208 (March 25) 1923

*Relations of Appendicitis and Adnexitis. C. G. Cumston.—p. 177.
*Low Transperitoneal Cesarean Section. E. Hauch.—p. 188.
Transverse Septum in Vagina. E. Goinard.—p. 193.

Reciprocal Relations Between Appendicitis and Adnexitis.—Cumston believes that the only way in which infection can be carried from the adnexa to the appendix is retrograde through the vessels. Venous stasis may develop from phlebitis, and lymphangitis may result. Infection may easily spread from the appendix to the adnexa through Clado's ligament, a prolongation of the meso-appendix which merges into the broad ligament and contains lymphatic vessels. The lesions are often considered genital and are treated as such without result. In beginning appendicitis, percussion will reveal an exudate in the iliac fossa but examination through the vagina will be negative. In his extensive experience with appendicitis he has never seen a woman in whom he could diagnose an inflamed appendix from bimanual palpation, although other persons say they can. Suppurative pelviperitonitis does not present symptoms as violent as those of acute appendicitis. Rupture in tubal pregnancy may be difficult to differentiate from pelvic appendicitis. The mortality is no greater in pelvic than in iliac appendicitis, but the symptoms are often more violent and indicate intervention. He adds that the pathology of the association of inflammatory lesions of the appendix and of the right adnexa has not yet been determined.

Low Transperitoneal Cesarean Section.—Hauch says that extraperitoneal section, the most logical for avoiding infection of the peritoneum, is deceptive since infection of the perivesical tissue is more dangerous than that of the peritoneum. In the low transperitoneal operation, the infectious content of the uterus inundates the cellular tissue which is more sensitive than the peritoneum itself, and part of the uterine content always seeps into the peritoneum. The uterus should be drawn out before opening and washed with ether. But the remote results, ruptures and adhesions, must be taken into consideration as well as the immediate dangers of peritonitis and infection of the wound. The operation may be of advantage in avoiding intraperitoneal adhesions. Among contraindications are placenta praevia; a preceding cesarean section, and cases in which the child is in imminent danger.

Revue de Médecine, Paris

40: 65-128 (Feb.) 1923

*Aneurysms of the Thoracic Aorta. J. Chalier.—p. 65.
*Diphtheric Paralysis. C. Zoeller.—p. 86. Conc'n p. 157.
*Does Anaphylactic Purpura Exist? A. H. Hanns and A. Weiss.—p. 104.

Aneurysm of the Descending Thoracic Aorta.—Chalier presents a study of the characteristic symptoms. Radioscopy generally aids in differential diagnosis, but even this may fail when the walls of the aneurysm are thick and lined with old clots, or the aorta is concealed by the heart as in a case described.

Present Status of Diphtheric Paralysis.—Zoeller affirms that never has any tendency to paralysis been noted in healthy subjects or healthy animals treated with diphtheria antitoxin. The earlier in diphtheria the antitoxin is injected, the less the proportion of cases with paralysis. When the paralysis is once developed, antitoxin should be given freely for three to five days. Comby has reported rapid cures under this in thirteen cases. Massive doses should be given in early diphtheric paralysis. With tardy paralysis, it should also be given if not administered before, and also when the patient is a carrier. If it does no good, at least it does no harm. Sometimes small doses answer the purpose. Ginestous witnessed subsidence of a paralysis of accommodation, which had persisted for two years, when two injections of 10 c.c. of antitoxin were given. If the patient is a carrier, antitoxin is required as the bacilli continue to secrete toxin.

Not Anaphylactic Purpura.—Hanns and Weiss report the case of a man subject to simple purpura. The coagulation

time was normal and there was no tendency to hemorrhage. There was slight fever for a time, and the muscles in the calf were tender. When the purpura had subsided, the man developed serum sickness under treatment of the anemia, but there was no flaring up of the purpura during the serum sickness.

Schweizerische medizinische Wochenschrift, Basel

53: 417-440 (April 26), 1923

*Fatigability of Striated Muscle. L. Asher.—p. 417.
*Typhoid Bacilli Carriers. Good.—p. 421. Idem. Arnd.—p. 423.
Action of Sulphur. A. Hottinger.—p. 429.
Smallpox. A. Müller.—p. 432.

New Theory on Infatigability of Striated Muscle, and the Problem of Its Autonomic Innervation.—Asher found in rabbits and frogs that it is possible to elicit contractions of striated muscles at constant and proper intervals for hours without producing signs of fatigue except in the first stage. In rabbits it is possible to repeat the contractions every second. In frogs kept in the cold, four seconds are necessary. Increase of the temperature permitted shortening of the critical interval. Resection of the sympathetic in rabbits did not cause any change in the experiment. Resection of dorsal spinal roots or injection of acetylcholin, which stimulates the parasympathetic, delayed the time of appearance of fatigue. Other experiments on the action of the vegetative nervous system are also reported.

Permanent Elimination of Typhoid Bacilli by Carriers, and Their Surgical Treatment.—Good points to the dangers for nurses and inmates of insane asylums from patients excreting typhoid bacilli. Widal's test is the safest and quickest method for detecting carriers. Preventive vaccination proved very efficient. Carriers, who are excreting bacilli permanently, should be operated on. . . . Arnd reports fifteen cases of gallbladder operations in typhoid carriers, and reviews the literature. He concludes that the results are not decisive. Before advising operation, the physician should explain the question fully to the patient, not forgetting that the gallbladder may be free from typhoid bacilli in persons eliminating these bacilli.

Policlinico, Rome

30: 489-520 (April 16) 1923

*Action of Artificial Pneumothorax. F. Parodi.—p. 489.
Carcinoma of Prostate Cured by Radium. G. Nicolich.—p. 494.
Injury of Bladder in Woman. P. Para.—p. 496.
*Malarial Infection in Surgery. P. Marogna.—p. 498.

Action of Artificial Pneumothorax According to Anatomic Observations.—Parodi found all the typical signs of tuberculosis in a lung treated with pneumothorax. Thus its action consists only in causing conditions favorable to proliferation of connective tissue; this is a healing process, but not a sign that the infectious process has been cured. The possibility of propagation by bronchi, blood and lymphatics remains, though its frequency and especially its extent is diminished. Definite results are very late.

Malaria from Surgical Standpoint.—Marogna reports two cases of recurrence of malaria after aseptic operations. In one it was the first recurrence in twelve years.

30: 521-551 (April 23) 1923

*Anastomosis of Vas Deferens. V. Salvo.—p. 521.
*Bismuth in Treatment of Syphilis. M. Artom.—p. 527.
Angiectasis in Skin of Base of Chest. Pellegrini.—p. 530.

Anastomosis of Vas Deferens.—Salvo succeeded in 50 per cent. of cases in restoring the permeability of the vas deferens by a side-to-side anastomosis. He believes that Monari's similar operation in suturing a ureter is the method of choice.

Value of Bismuth Preparations in Treatment of Nervous Syphilis.—Artom tried bismuth treatment in two recent and one old case of tabes and in two patients with general paresis. The clinical state and examinations of blood and cerebrospinal fluid showed no effects from the treatment.

30: 177-232 (April 15) 1923. Surgical Section

*Treatment of Surgical Tuberculosis. L. Durante.—p. 177.
Tumor from Aberrant Salivary Gland Tissue. O. Finzi.—p. 191.
*Bone Grafts. U. Monaco.—p. 203.
Epithelial Cyst of Prepuce. G. Roello.—p. 220.
Present Status of Reconstruction of Thumb. Gussio.—p. 224.

Treatment of Surgical Tuberculosis with Hypertonic Saline.—In 1919 Durante had occasion to treat 326 soldiers with tuberculous abscesses, and has traced the subsequent course in most of them. Treatment was with a hypertonic salt solution, injecting into the cavity an amount equal to about half of the fluid withdrawn. He has a record of 540 tuberculous lesions of the kind thus treated. After three injections he changed from a calcium chlorid to a sodium chlorid, and then to a magnesium chlorid solution, each a 2.5 per cent. solution in distilled water, with or without a few drops of solution of formaldehyd, added after cooling. He refrained from curetting or other mutilating intervention, and usually injected the hypertonic solution at four day intervals. The cold abscesses frequently started to heal after a single injection, especially those in muscles or ribs. The gravity abscess from extensive vertebral caries was the longest in healing—an average of six months in cases traced to date. He summarizes the literature on treatment by stimulating osmosis in cavities, and refers to his previous articles on the subject, including one in the *Lancet*, in 1919.

Bone Grafts.—Monaco argues that in normal bone certain elements are constantly dying and being replaced by new ones, and the same process occurs in a bone implant when the inner layer of the periosteum accompanies the bone. But the change in environment interferes with nutrition, and this exaggerates the normal process of destruction and repair; but he is convinced that the bone retains its vitality, and after the temporary setback resumes a physiologically complete life when conditions are favorable. This was always manifest in the young and healthy thus treated in Muzii's service since 1909.

Riforma Medica, Naples

39: 433-456 (May 7) 1923

*The Blood in Epilepsy. G. Pezzali.—p. 433.
*Busacca's Test for Tuberculosis. G. Montemartini.—p. 437.
*Agglutination of Spermatozoa by Serum. E. Debenedetti.—p. 440.
Diphtheria at Venice 1903-1912. E. Bussa Lay. —p. 444.
Subhepatic Perivisceritis. G. Castronuovo.—p. 445.

The Blood in Epilepsy.—Pezzali was unable to note any special features of the metabolic findings in five epileptics tested before, during and after seizures. The nonprotein nitrogen and chlorids showed nothing characteristic. Only the cholesterol regularly decreased during the seizure and rose afterward, as likewise the fat to a less extent, while the glucose content was stable. The presence of indican suggested the advisability of regulating the digestive processes. The regular fluctuations in the cholesterol content indicate that this may have a protecting action, and that it might be advisable to give cholesterol treatment a thorough trial. The calcium content of the blood was found much higher during the attacks. This suggests treatment with organic calcium during the intervals.

Busacca's Test for Tuberculosis.—The tuberculous are liable to respond with a pronounced local reaction to intradermal injection of 0.2 c.c. of normal horse serum. Montemartini obtained a positive response in 65 per cent. of 315 tuberculous patients tested. Only those with comparatively recent and active tuberculosis responded positively. This nonspecific test therefore aids both in diagnosis and prognosis.

Agglutination of Spermatozoa.—Debenedetti found that certain serums agglutinate spermatozoa, and he discusses the relation between this and the rouleau formation of the red blood cells.

39: 457-480 (May 14) 1923

*Sunlight in Treatment and Prevention of Internal Manifestations of Tuberculosis. A. Ferrannini.—p. 457.
*Digestive Leukocytosis. E. Puxeddu.—p. 461.
*The Odor of the Urine. E. Pittarelli.—p. 463.
*Transorbital Puncture of Gasserian Ganglion. E. Aievoli.—p. 467.

Heliotherapy in Internal Tuberculosis.—Ferrannini relates that an Italian physician, A. Sciascia, invented a "photocautery" to concentrate sunlight and artificial light, and, in 1892, reported its successful application in the treatment of trachoma and lupus, tuberculous fistulas and peritonitis, erysipelas and carbuncle. This, he says, was seven years before Finsen's first publication on treatment by light. He pleads for arrangements for heliotherapy in every community, every

house, every school, every factory, so that every worker with brain or hands could have opportunity for a sunbath every day. The old saying "Where the sun enters, the doctor stays away" should be changed to "Where the doctor enters, the sun enters too."

Digestive Leukocytosis. — Puxeddu's experiments showed that sodium bicarbonate has a direct depressing influence on the leukocyte count, in addition to its indirect influence by neutralizing the hydrochloric acid in the stomach. Leukopenia follows the sodium bicarbonate even when administered while fasting; hydrochloric acid given during fasting induces leukocytosis.

The Substance Responsible for the Odor of Urine.—Pittarelli treated distilled urine with sodium bicarbonate and mercuric chlorid, then with potassium iodid, and then with Nessler's reagent. He obtained in this way a ketone-like substance, different from acetone, which, he says, is responsible for the odor of the urine.

Access to Gasserian Ganglion Through Orbit.—Aeivoli summarizes recent works on the gasserian ganglion in THE JOURNAL and elsewhere.

Brazil-Medico, Rio de Janeiro

1: 233-244 (April 28) 1923

*Juxta-Articular Nodules in Brazil. J. Montenegro.—p. 233.
New Species of Anopheles. A. Neiva and C. Pinto.—p. 235.
Public Health Service in Minas Geraes. C. Sá.—p. 236.

Etiology of Juxta-Articular Nodules.—In the case described by Montenegro, the subsidence of the lumps near the elbow under treatment for syphilis confirms the assumption of their syphilitic origin. The woman had had transient ulceration of the vulva before the nodules developed.

1: 245-258 (May 5) 1923

Hypertrophied Prostate. H. Ringel.—p. 245.
*Yaws in Brazil. A. Gavião Gonzaga.—p. 248.
Typhoid in Infants. A. Ricardo.—p. 250.

Yaws in Brazil.—Gavião Gonzaga relates that *bouba* was identified in Brazil in 1909 by Rabello's finding *Spirochaeta pertenuis* in the lesions. It is known to be prevalent in nine of the states of Brazil. In Ceará, 60 per cent. of the rural population and 15 per cent. in the towns are affected, while the seacoast is almost exempt. In his experience, mosquitoes seemed to be the principal means of transmitting yaws. The main thing in prophylaxis is to protect the lesions against bloodsucking insects. The public health service is now treating yaws with neo-arsphenamin. Otherwise treatment is with Castellani's emetin-iodin method or tartar emetic. (Compare with editorial in THE JOURNAL, June 23, 1923, p. 1854.)

1: 259-276 (May 12) 1923

*Types of Meningococci in Brazil. L. de Assumpção.—p. 259.
*Tropical and Subtropical Diseases. L. W. Sambon.—p. 263.

Meningococcus Types in Brazil.—This communication from the Instituto de Butantan states that of nearly three dozen strains of meningococci tested with French, American and Danish antiserums, only 51.5 per cent. responded to the French and 67.6 per cent to the North American antiserums. The Danish antiserum did not agglutinate any of the Brazilian strains.

Tropical and Subtropical Diseases.—This is a translation into Portuguese of Sambon's article in the *Journal of Tropical Medicine* of June 15, 1922.

Deutsche medizinische Wochenschrift, Berlin

49: 535-568 (April 27) 1923

Contamination of Healthy Cells by Diseased Cells. E. Frey.—p. 535.
*Theory of Atrophy of Muscle. A. Lipschütz.—p. 536.
Hemagglutination in Prognosis of Febrile Affections. E. Vey.—p. 537.
Treatment of Affections of Thyroid with Iodin. Sudeck.—p. 538.
Chemotherapy of Malignant Tumors. R. Roosen.—p. 538.
Action of Papaverin on Striated Muscles. J. Kiss.—p. 541.
*Clinical Use of Papaverin. L. Frigyér.—p. 543.
Dissociation of Personality and Types of Defectives. W. Cimbal.—p. 545.
Treatment of Malaria with Silver Arsphenamin. J. Jungbluth.—p. 545.
Electric Phenomena in Case of Paralysis Agitans. Hesse.—p. 546.
Blood Grouping in Different Races in Hungary. A. v. Jeney.—p. 546.
Opening of Peritonsillar and Retropharyngeal Abscesses. Finder.—p. 547.
Dermatological Diagnosis. M. Joseph.—p. 548.
Determination of Diastolic Blood Pressure. P. Engelen.—p. 550.
Albuminuria in Early Syphilis. A. Dreyer.—p. 550.
Treatment of Whooping-Cough with Ether. F. Graeser.—p. 551.
Comment on "Case of Barbital Poisoning." E. Merck.—p. 552.
What is Being Done to Keep up the Public Hospitals in Germany? L. Langstein.—p. 552.
Royalties for Scientific Works. V. Schilling.—p. 554.
Gynecologic Diseases and Obstetrics in Africa. F. Appel.—p. 555.
Goethe and Compulsory Vaccination. K. Mendel.—p. 557.

Theory of Atrophy of Muscle.—Lipschütz reports further experimental work of his pupil A. Audova. They had found before that the dry weight of a muscle after resection of the nerve is the same as after tenotomy. Chemical investigation showed differences however. The increase in fat was much more marked after resection of the nerve.

Clinical Use of Papaverin.—Frigyér confirms the favorable action of papaverin on high blood pressure, especially in acute glomerulonephritis. It has no effect in severe forms of essential hypertension and nephrosclerosis. Its depressing action is obtained only when slight narcotic effects are observed. Usually one needs an intramuscular injection of 0.2 gm. From 0.3 to 0.5 gm. can be given daily by mouth.

Deutsche Zeitschrift für Chirurgie, Leipzig

178: 1-144 (March 20) 1923

*Artificial Epithelization of Esophagus. A. Narath.—p. 1.
*Constitutionally Weak Epiphyses. Lehmann.—p. 11.
*Blocking the Splanchnic Nerves. E. Metge.—p. 37.
Ossification in Muscles After Spinal Cord Injury. Rehbein.—p. 60.
*Tumors of the Cerebellopontile Angle. T. Aoyama.—p. 76.
Action of New Antiseptics on Tissues. W. Odermatt.—p. 90.
*Resection of Large Intestine. F. Brunner.—p. 96.
*Ascarid Ileus. K. Jaroschka.—p. 122.
Bleeding Myoma on Small Intestine. W. Goldschmidt.—p. 128.
Acute Osteomyelitis of Skull. E. Metge.—p. 133.
Luxation in Chopart's Joint. W. Krämer.—p. 136.
Hernia of Gimbernat's Ligament. E. Sattler.—p. 140.

Artificial Epithelization of the Esophagus.—Narath suggests the possibility of applying a Thiersch flap directly to reconstruct the epithelial lining of the esophagus after a corrosive injury. He thinks the cicatricial stenosis is due in large part to the defect in the epithelium. By healing this, we might ward off stenosis. His plan is to wrap a square Thiersch flap around a rubber tube and introduce it from above or below, pulling on the tube to stretch it until narrow enough to pass through the stricture, under direct inspection with the esophagoscope introduced from above or below. Thiersch flaps heal in the mouth perfectly, and swallowed saliva would drain through the tube. The tube must be large enough to press the flap evenly against the esophageal epithelium. Even if only part of the flap adheres, when the tube is finally removed, this island may be enough to insure natural production of epithelium.

Constitutionally Weak Epiphyses.—Lehmann discusses this possibility as a factor in rachitis, osteochondritis and arthritis deformans. Three cases are described in which this seemed to be the explanation for loose bodies in the joint. Even normal functioning is too much strain in this condition.

Blocking the Splanchnic Nerves.—Metge gives scopolamin and morphin beforehand, and then follows Kappis' technic exactly. He has applied this method in over 100 cases and found it convenient and effectual. But in 78 of the total 104 cases the blood pressure dropped to below one half of what it was before and after. As a rule, this great fall in blood pressure does no harm. There were 3 fatal pneumonias in 112 operations under splanchnic nerve blocking, but he had 7 cases of fatal pneumonia in an equal number of operations under general anesthesia at the same time. The after-effects seem to be less severe with the splanchnic method in operations on the stomach and for gallstones, which are the ones for which it is preferred. But the drop in blood pressure must be considered. His charts show a drop from 125 to 25 and then imperceptible pulse, in fifteen minutes, in a woman, aged 58, with gastric cancer. The pressure rose to 35 in the next ten minutes, and gradually climbed to 120 as the long operation proceeded. The pressure had reached 95 by the end of the hour.

Tumor in Cerebellopontile Angle.—In the two cases described, one patient was cured by the operation.

Resection of Large Intestine.—Brunner reports a series of seventy operations with seven deaths. In forty-seven of the

cases the operation was concluded at one sitting. Eight patients are in good health from four to fifteen years after resection of a cancer in the large intestine.

Ascarid Ileus.—Jaroschka's patient was a boy, aged 15 months; the clump of ascarids was removed by operation. Diffuse peritonitis followed, and was explained at necropsy by perforation of the bowel where an ascarid had forced its head through the suture.

Klinische Wochenschrift, Berlin

2: 725-772 (April 16) 1923

New Investigations on Amebas. W. Fischer.—p. 725.
*Pathogenesis of Amyloid. H. Kuczynski.—p. 727.
Significance of Cells of the Walls of Vessels in Pathology. G. Herzog. —p. 730. Conc'n.
Diabetes Mellitus in Young Persons. W. Weiland.—p. 736.
*Albuminocholia and Its Diagnostic Significance. F. Raue.—p. 741.
Experimental Research on Effect of Great Heat on Tissues. A. Beckmann.—p. 743.
Sedimentation Speed and Volume of Erythrocytes. M. Bönniger and W. Herrmann.—p. 744.
Colorimetric Determination of Arsphenamin and Neo-Arsphenamin. H. Weyl.—p. 745.
*Calcium Chlorid in Sachs-Georgi Reaction. E. Witebsky.—p. 745.
Clinical Method of Fibrinogen Determination. Leendertz.—p. 746.
Peculiar Form of Acute Anemia. Frehse and Froboese.—p. 748.
Treatment of Spasms in Children. O. Bossert.—p. 749.
War Privations and Dimensions of Body. F. Fischer.—p. 752.

Pathogenesis of Amyloid.—Kuczynski was able to produce amyloidosis in mice by feeding them with casein or soluble proteins of eggs. The structure of the amyloid was similar to the crystalloid structure observed by Maximow in the amyloid degeneration of horse liver. He believes that amyloid is a product of fermentative decomposition of proteins.

Albuminocholia and Its Diagnostic Significance.—Raue concludes from seventy examinations of duodenal contents that the normal bile does not contain proteins coagulable by heat. If they are present, they may be used in the diagnosis between cholecystitis and nonbleeding duodenal ulcers, cholelithiasis and nephrolithiasis. Positive reaction speaks for stasis in the liver and against cirrhosis.

Action of Calcium Chlorid on the Reversible Early Flocculation in Sachs-Georgi Reaction.—Witebsky investigated the nonspecific early flocculations in the Sachs-Georgi test, which disappear later. He found that addition of small amounts of calcium chlorid produces them in many instances, and makes some of them permanent. Such serums were derived especially from cases of tuberculosis, tumors, infections, pregnancy, anemias and other diseases with an increased lability of serum proteins.

2: 773-812 (April 23) 1923

New Views on Psychoses. K. Birnbaum.—p. 773.
*Experiments on Cancer Tissue. Warburg and Minami.—p. 776.
*Surgical Treatment of Angina Pectoris. F. Brüning.—p. 777.
*Oversensitiveness to Tuberculin. Dietrich and Klopstock.—p. 780.
*Auricularis Symptom in Meningitis. B. Mendel.—p. 782.
*Fractures of Base of Skull. A. Esch.—p. 782.
*Leukopenia After Injection of Protein Free Material. H. Ritter.—p. 784.
Comment on Pulay's "Blood Chemistry." E. Urbach.—p. 785.
Capillary Mixing Pipet for Microchemical Examination of Blood. M. Landsberg.—p. 788.
Test for Gastric Secretory Insufficiency. J. Vandorfy.—p. 789.
*Roentgen Irradiation of Suprarenals. O. David and A. Hirsch.—p. 790.
*Refraction of Human Cerebrospinal Fluid. A. L. Molnár.—p. 790.
*D'Herelle's Phenomenon. W. Borchardt.—p. 791.
Artificial Perforations of Uterus. H. Reinstaller.—p. 792.
Renal Hematuria. H. Gessler.—p. 793.
Symbiosis of Plants. F. Markgraf.—p. 797.

Experiments on Surviving Carcinomatous Tissue.—Warburg and Minami examined the glycolytic action of surviving small sections from Flexner's strain of rat carcinoma. They found that it forms at least seventy times more lactic acid from sugar, than other tissues of rats. Absence of oxygen does not change the action. Narcotics inhibit it, but hydrocyanic acid has little effect. These qualities correspond to the behavior of low organisms, like yeast. One mg. of tumor forms 0.075 mg. lactic acid per hour. This means, that it can decompose in thirteen hours its own weight of sugar. The energy thus liberated is 42 per cent. of the energy that the tumor sets free by its oxygen consumption.

Surgical Treatment of Angina Pectoris by Extirpation of Cervical Sympathetic, and Comment on Surgical Treatment of Abnormally High Blood Pressure.—Brüning adds to the three cases of Jonnesco and Tuffier a fourth instance of successful extirpation of the cervical sympathetic in angina pectoris. He observed lowering of the blood pressure from the operation.

Tuberculin Allergy and Anaphylaxis.—Dietrich and Klopstock used the isolated uterus of virginal guinea-pigs (Dale's method) for testing the anaphylactic condition of the animals infected with tuberculosis. They found that tuberculin was without effect, while an extract from tubercle bacilli acted very strongly. They conclude that tuberculous guinea-pigs are sensitized against proteins of tubercle bacilli, but not against tuberculin. Thus the tuberculin reaction does not seem to be due to anaphylaxis against the proteins of tubercle bacilli.

Auricularis Symptom in Meningitis.—Mendel finds that mild pressure applied on the dorsal wall of the external auditory meatus in meningitis causes severe pains and a marked reaction, even in stupor. The negative control is made by pressure on the anterior wall. He calls his sign the "auricularis phenomenon" and considers it an early symptom of meningitis. The reflex is due to an irradiation of increased irritability from the meningeal branch of the pneumogastric to the auricular branch of the same nerve.

Treatment of Injured Ear in Fractures of Base of Skull.—Esch requires in injuries of the ear in fractures of the base of the skull the same indications as in other affections of the ear. He does not operate, if the ear is not inflamed.

Leukopenia After Nonspecific Intracutaneous Injections of Protein-Free Material.—Ritter injected olive oil, sterilized juice from carrots or a 5 per cent. solution of milk sugar. All such injections were followed by leukopenia while subcutaneous injections failed to produce it. He confirms fully E. F. Müller's findings on the importance of the mode of introduction. It does not matter whether the injected substance contains proteins.

Experimental Investigations on Epinephrin Content of Suprarenal Capsules After Roentgen Irradiation.—David and Hirsch found usually a decrease of the epinephrin content of different animals after irradiation with one skin dose, and an increase when using a quarter of the dose.

Refraction of Human Cerebrospinal Fluid.—Molnár's figures confirm the usefulness of the determination of the refractometric index of the cerebrospinal fluid. It is not parallel with the concentration of the globulin fraction alone.

Further Biologic Contributions to d'Herelle's Phenomenon.—Borchardt does not confirm Putter's and Vallen's alleged bacteriophage action of filtered bouillon. He studied the activity of duodenal contents of animals, and found that bile does not play any part in it. The duodenal content of dogs after extirpation of the pancreas was not bacteriophage. He concludes that trypsin has an action analogous to d'Herelle's phenomenon.

Medizinische Klinik, Berlin

19: 523-560 (April 22) 1923

Indications for Mixed Infant Feeding. A. Reuss.—p. 523. Conc'n p. 565.
*Treatment of Chronic Arthritis. Hirsch and Sternberg.—p. 527.
*Condyloma Acuminatum. L. Waelsch.—p. 529.
Functional Prognosis of Suture of Tendons. K. Lang.—p. 530.
*Diagnosis of Endocranial Affections. G. Charousek.—p. 533.
Necessity and Results of Early Operation in Tubal Pregnancy. F. Engelmann.—p. 535.
*The Sucking Habits of Children. M. Cohn.—p. 536.
Treatment of Epicondylitis. C. Gütig.—p. 539.
Duration of Immunity Against Smallpox Acquired by Vaccination. Siebelt.—p. 539.
*Leukocyte Blood Picture in Dysentery. Lämpe.—p. 540.
Case of Death from Purulent Meningitis Not Due to Injury of Head. H. Engel.—p. 541.
Gynecology of Practitioners. E. Runge.—p. 544. Cont'n.
Liver Function Tests. F. Glaser and B. Engelmann.—p. 546.

Treatment of Chronic Deforming Arthritis.—Hirsch and Sternberg regard with resignation the results of treatment of chronic cases with protein and similar therapy. They observed a certain number of surprising results regularly whenever introducing any new preparation. They believe that this is due simply to mobilization of psychic reserve

powers under the influence of a strong stimulus and fever. Such miraculous cures last for a few days or months, according to the energy of the patient. The individual constitution influences the action of stimulating treatment (especially in fever) more than the preparation used. Physical therapy cannot be substituted by protein therapy.

Contagiousness of Condyloma Acuminatum.—Waelsch considers his inoculation experiments as having proved the contagiousness of condyloma acuminatum. He reports a new case. The affection disappeared very quickly after arsenical treatment. This would speak, according to him, for verrucae which present themselves as condylomata because of the localization.

Diagnosis of Accidental Endocranial Affections and of Complications of Suppurative Otitis Media.—Charousek considers otoscopy with functional tests of the ear and their comparison with the clinical symptoms which can be attributed to the ear affection with certainty as the safest aids to diagnosis. An omitted operation might be more disastrous in a doubtful case than an unnecessary operation.

Sucking Habits of Children and Deformities of Jaws.—Cohn finds that the habitual sucking of fingers has a distinct influence on the formation of prognathism and other deformities of teeth and jaws.

Leukocyte Blood Picture in Dysentery.—Lämpe found in mild cases of dysentery 30 to 55 per cent. of lymphocytes and 1 to 3 per cent. of eosinophils. Severe cases had low lymphocyte counts (7-15-21 per cent.) and absence of eosinophils.

Monatsschrift für Kinderheilkunde, Leipzig

25: 1-693 (March 25) 1923. A. Czerny Festschrift

*Alkalescence of Cerebrospinal Fluid in Infants. A. Bálint.—p. 1.
*Colon Bacillus Infection of Small Intestine. J. Bernheim-Karrer.—p. 6.
*Toxicosis in Infants. G. Bessau et al.—p. 17.
*Changes in Mother's Milk During Lactation. W. Birk.—p. 30.
*The Fat Soluble A Vitamin and Rachitis. C. E. Bloch.—p. 36.
*Transillumination of Skull. J. v. Bokay.—p. 43.
*Sodium Chlorid in the Exudative Diathesis. Brinchmann.—p. 53.
Diagnostic Problems in Pulmonary Tuberculosis in Children. J. Caspari.—p. 62.
*Nonspecific Serum Treatment in Infancy. B. Epstein.—p. 72.
*Goiter Heart and Thymus Heart in Infants. E. Feer.—p. 88.
*Sclerema in Infants. Finkelstein and Sommerfeld.—p. 105.
*Profeta's Law of Immunity. R. Fischl.—p. 110.
*Cerebrospinal Fluid in Congenital Syphilis. M. Frank.—p. 136.
*Onesided Vitamin Feeding and Its Correction. A. Frank.—p. 147.
Infection Prevention in Institutions. W. Freund.—p. 158.
Practical Value of Vitamin Therapy. T. Frölich.—p. 171.
*Vitamin A and B in the Biochemistry of Growth. Glanzmann.—p. 178.
*Diphtheria of the Nose. F. Göppert.—p. 201.
*Starch Nutritional Disturbance. E. Gorter.—p. 211.
*The Pyuria Question. Grävinghoff.—p. 222.
Tuberculosis in Childhood. J. Grosz.—p. 240.
*Butter-Flour Mixture. R. Hamburger.—p. 254.
Changes of White Blood Cells After Injections of Gelatin in Tuberculous Children. P. Heim.—p. 264.
*Tuberculin Tests in Children. P. Hertz.—p. 269.
Calcium and Inorganic Phosphorus of Serum in Relation to Rickets and Tetany. J. Howland and B. Kramer.—p. 279.
Case of Ollier's Disease: Chondrodysplasia. C. Johannessen.—p. 294.
*Suggestive Treatment. P. Karger.—p. 306.
*Experiences with Butter-Flour Mixture. R. P. van de Kasteele.—p. 314.
Asthenic Habitus in Children. H. Kleinschmidt.—p. 324.
Metabolism, Especially of Minerals, in Osteogenesis Imperfecta. K. O. af Klercker.—p. 338.
Preventive Vaccination Against Varicella. Knoepfelmacher.—p. 367.
*Sleep and Inhibition. N. Krasnogorski.—p. 372.
Some Remarkable Temperature Curves. C. de Lange.—p. 387.
Pathogenesis of Spasmophilia. R. Lederer.—p. 394.
*Epidemic Cerebrospinal Meningitis is a Chorio-Ependymitis. K. Lewkowicz.—p. 410.
*Mental Development of Prematurely Born Rachitic Infants. C. Looft.—p. 420.
Nutritional Disturbances in Infancy. W. McKim Marriott.—p. 426.
Vagotonia and Sympathicotonia in Diseases of Children. E. Mensi.—p. 440.
Scorbutic Diathesis. L. F. Meyer.—p. 454.
*Treatment of Acute Toxic-Infectious Gastro-Enteritis with Protracted Water Diet. Monrad.—p. 468.
*Neotenic Character of Myxedema. E. Moro.—p. 481.
Hypnosis in Children. K. Mosse.—p. 486.
Observations on Twins. A. Orgler.—p. 500.
Steeple Skull. A. Peiper.—p. 509.
*Somatic Constitution and Tuberculosis in Children. J. Peiser.—p. 517.
Czerny-Kleinschmidt Butter-Flour Mixture. V. Poulsen.—p. 539.
Cure of Tuberculosis. K. Preisich.—p. 546.
*Mortality from Diphtheria. H. Schelble.—p. 553.
*Catarrhal Icterus. E. Schiff and H. Eliasberg.—p. 563.
Autochthonous Malaria in Child in Karlsruhe. Schiller.—p. 589.
*By-Effects of Arsphenamin. E. Slawik.—p. 593.
*Equilibrium of Ions and Transmineralization. K. Spiro.—p. 609.
*Cystitis from Hexamethylenamin in Scarlet Fever. Steinitz.—p. 617.
Toxicosis. F. Stolte.—p. 624.
Genius Epidemicus et Loci. F. v. Szontagh.—p. 631.
Metabolism Study of a Case Simulating Premature Senility. F. B. Talbot.—p. 643.
Frequency of Tuberculosis in School Children. Vogt et al.—p. 647.
*Etiology and Dietotherapy of Prurigo of Children. R. Weigert.—p. 669.
Unsolved Problems of Stenosis of Pylorus. Wernstedt.—p. 676.

Alkalescence of Cerebrospinal Fluid in Infants.—Bálint found a constant carbonate content (corresponding to 1.92-1.80 of centinormal acid) in the cerebrospinal fluid of healthy children. He considers figures between 1.85 and 2.00 normal. In cerebral, especially inflammatory, diseases there was a local acidosis in the fluid, while the findings were not constant in other infectious processes. Acidosis of the cerebrospinal fluid does not parallel acidosis of the blood. This is especially true of spasmophilia, in which the fluid is usually acidotic.

Colon Bacillus Infection of Small Intestine.—Bernheim-Karrer, in experiments on animals, finds that colon bacilli are able to infect the small intestine only if it is injured anatomically, or at least functionally. Diphtheria toxin damages the mucosa of the small intestine in guinea-pigs and rabbits, and colon bacilli are then found. It seems that the severe disturbances of new-born guinea-pigs fed on cow's milk are due to invasion of the small intestine by colon bacilli.

Toxicosis in Infants.—Bessau, Rosenbaum and Leichtentritt studied the combination of infection and symptoms of intoxication in children. They found that an infectious toxicosis may occur in the second year of life, while purely alimentary intoxication is limited to younger age. The pathognomonic sign is the "deep breathing." Together with coma and loss of water reserves, it indicates the combination of the existing infection with intoxication. The essence of the disturbance is the loss of water (dehydration), just as it is in alimentary intoxication. Food, in neither case, is the sole cause. Lactosuria occurs in both alimentary and infectious intoxication. The treatment must combat the loss of water.

Changes in Mother's Milk During Lactation.—Birk, contrary to popular belief, found that, even after three years of nursing, human milk contains a sufficient amount of food and salts.

The Fat Soluble A Vitamin and Rachitis.—Bloch emphasizes the importance of vitamin A, even if it may not be the cause of rachitis. Xerophthalmia, which is due to the lack of it, is a more common cause of blindness than many assume. The diagnosis of its later stages is not easy, and most cases are misdiagnosed and mistreated as inflammation of the eyes.

Transillumination of the Skull in Chronic Internal Hydrocephalus.—Bokay recommends Strassburger's method for determining the distribution of the fluid in the cerebral ventricles in hydrocephalus.

Sodium Chlorid Excretion with the Exudative Diathesis.—Brinchmann found greater retention of ingested chlorids in children with exudative diathesis than in normal controls.

Nonspecific Serum Treatment in Infancy.—Epstein selected for protein treatment severely atrophic infants, whose symptoms seemed to warrant a bad prognosis. He used daily injections of serum from different animals, starting with 0.5 c.c. and adding daily 0.2 or 0.3, until the optimum was reached (between 1 and 2 c.c.). Eight or ten injections were usually sufficient; in some cases thirty injections were necessary. He believes that daily injections of small amounts avoid anaphylactic phenomena. Other proteins, including milk, and injections of saline and epinephrin had no therapeutic effects. He saw very good results in twelve out of eighteen chronic atrophies. The first injections were immediately followed by increase in weight due apparently to water retention though edema never occurred. It seems that the treatment acts on the hydration function of infantile tissues. Atrophy in prematurely born and other weak infants, as well as in those with congenital malformation and debility,

was favorably influenced. The action on the general condition was also very beneficial in atrophies due to infections, though the course of the basal process (folliculitis, abscess) was not modified. He considers pyuria a contraindication, because it seems that only a negative phase, with focal reaction, occurred. Diphtheria occurred in one child during the treatment, but the patient recovered after injection of antidiphtheric serum.

Goiter Heart and Thymus Heart in Infants.—Feer studied the relations of the thyroid and thymus with the size of the heart in infants. Endemic goiter causes very frequently a dilatation and hypertrophy of the heart, which becomes smaller after treatment of the goiter with iodids. Hyperplasia of the thymus causes a less marked enlargement of the heart. Both goiter and hyperplastic thymus frequently occur in the same infant; the heart may be very much enlarged in these patients.

Pathogenesis of Sclerema in Infants.—Finkelstein and Sommerfeld do not consider the chilling of the fat in subnormal temperatures as cause of sclerema. On the contrary, they usually found fever. Chemical examination of the fat in infants did not give reason to assume a higher melting point due to hydration. They believe there is some change of the colloids of the tissues.

Profeta's Law of Immunity.—Fischl deals with recorded and personal cases of apparently healthy and immune children of syphilitic mothers. He finds no reason to deny the existence of Profeta's immunity. Experiments point also to the possible immunizing properties of serum of individuals with latent syphilis. These children should be nursed by the mother. He never saw an infection of the child caused by nursing, and the milk may confer a further immunity.

Cerebrospinal Fluid in Congenital Syphilis.—Frank found increase in globulins, lymphocytosis and positive Wassermann reaction only in insufficiently treated infants with florid syphilis. The colloidal gold reaction is more sensitive and very valuable.

One-Sided Vitamin Feeding and Its Correction.—Frank overfed rats with fat, and found a characteristic loss of density of hair and a dermatitis with crusts, especially on the ears. He believes that these disturbances were due to a too strong proportion of vitamin A in the food, because the animals recovered when larger amounts of vitamin B and C were added. He recalls Czerny's observations on children who received daily 80 gm. cod liver oil. They suffered from eczema, until the oil was discontinued. Since similar disturbances of the correlation of ingested vitamins are possible in the exudative diathesis, he proposes to experiment with addition of vitamin B and C.

Vitamin A and B in the Biochemistry of Growth.—Glanzmann believes that vitamins regulate the hydration of colloids of the cells. He found that avitaminotic rats lose suddenly in weight if deprived of salt, while healthy controls are able to retain the water. He gives his colloid-chemical points of view on growth, and deals especially with the significance of hydration and dispersion of colloids with regard to the action of vitamins.

Diphtheria of the Nose.—Göppert points out that a positive bacteriologic findings does not prove that the child is suffering from diphtheria, and that negative findings do not disprove it. The most important sign is the typical membrane, though it may be due to other infections. Sanguinolent secretion is important, but not very common. Some cases are chronic. Unilateral atrophic rhinitis is especially suspicious of a diphtheric origin.

Starch Nutritional Disturbance.—While the summer diarrheas are already under control in Leiden (Netherlands), Gorter considers nutritional disturbance from flour an important cause of infant mortality. Most of these children had been fed for weeks exclusively on flour, or rice and water, or on some proprietary preparation. Human milk is the best remedy, yet some infants are no longer influenced by it. In such cases, transfusions of blood save the infant.

The Pyuria Question.—Grävinghoff observed, among 140 infants with pyuria, two cases of carpopedal spasms and edema of the hands and feet.

Butter-Flour Food.—Hamburger points out the advantages of reserve fat formed during fat feeding over the fat formed on a carbohydrate diet in some infants. Addition of 100 gm. of a soup containing 5 gm. butter and 5 gm. flour may be very valuable. Raw butter is as dangerous with regard to tuberculosis as raw milk. The mixture is excellent in mixed feeding and the contraindications, as stated by Czerny and Kleinschmidt (acute disturbances, atrophy) remain. The fat is well tolerated with neutral and alkaline reaction of the stool and even with a weakly acid reaction, when it is followed by well formed calcium soap stools. With strongly acid reaction of feces, the butter-flour soup may increase the dyspepsia because of the formation of fatty acids. The mixture sometimes causes slight constipation. These cases are improved by addition of sugar. If it does not help, or if diarrhea occurs after butter-flour soup, the addition of fat must be discontinued.

Tuberculin Tests in Children.—Heim recommends the use of different tuberculins for the easy cutaneous test, though the subcutaneous or intracutaneous is more reliable.

Suggestive Treatment and Orthogenic Conditioned Reflex.—Karger differentiates between suggestion and an orthogenic conditional reflex. Suggestion is a representation induced by an outside authority, accepted without criticism, leading to a movement, sensation, or inhibition. An orthogenic conditioned reflex is the activating or inhibiting influence of a regular connection between a performed or omitted action and some agreeable or disagreeable sequela automatically occurring after it—without any outside authority. This coupling of an action to a disagreeable sensation is what Czerny calls a "modified spanking." It plays a part even in the supposedly purely suggestive action of some drugs. For a time he had failures with tinctura amara, because the druggist had substituted for it a more pleasant concoction. A solution of quinin gave the desired results. Treatment with electricity is merely suggestive if it is not painful. Yet it is possible to induce with it a therapeutic conditional reflex, if one uses it exclusively immediately after the pathologic symptom (for instance, enuresis), and in a painful way. The pain must not be represented in any sense as punishment; most of these children had been treated without results with unmodified spanking. The pain must be explained as a regrettable but unavoidable concomitant of the necessary treatment with electricity. If disagreeable drugs are used, the proper direction is not: "Three times daily," but: "A teaspoonful if the bed is wet." In hysterical paralysis better results are obtained with sudden surprise. In anorexia the real objects of the treatment are the parents, who spoil the appetite. The difference between slimness and undernutrition is to be explained. A coated tongue points usually to some organic affection of the nasopharynx.

Experiences with Butter-Flour in Infant Dispensary at Scheveningen.—Besides reporting good results with butter-flour soup, Kasteele gives some interesting folklore about the fishers of Scheveningen (Netherlands). The women are afraid to use fresh water; believe that pediculi are advantageous for health, etc. They avoid using a wetnurse who has a girl baby for nursing a boy.

Sleep and Inhibition. — Krasnogorski continued the extremely interesting observations made by Shishlo and Solomonoff on the sleep provoked in animals by certain conditional reflexes. He induced several "active points" on the legs of a dog, which were always associated with feeding and provoked salivation, and an "inactive" point, which was without connection with feeding and provoked no salivary reaction. Stimulation of this point led to sleep. Still better results were obtained with conditioned inhibition. This means instituting a stimulus which inhibits a conditional reflex, if applied at the same time. For instance, the animal was fed when stimulated on the skin. If however a metronome was working when the skin was stimulated, the animal received no food. Thus the simultaneous action of a metronome induced inhibition of the salivation which would otherwise follow the irritation of the skin. The most interesting observation was that this inhibitory influence seems to extend also to other parts of the central nervous system, and induces sleep.

Similar results were obtained with children. These experiments speak for the theory that sleep is due to central inhibition.

Epidemic Cerebrospinal Meningitis a Chorio-Ependymitis.—Lewkowicz finds that the main point of attack of the meningococci is in the tela chorioidea and ependyma of the ventricles of the brain. If the connection of the brain with the subarachnoid space is occluded, the local suppuration of the meninges stops.

Mental Development of Prematurely Born Rachitic Infants.—Looft considers rachitis the main cause of the frequent slow mental development of prematurely born infants in the first two or three years of life.

Treatment of Acute Toxi-Infectious Gastro-Enteritis with Protracted Water Diet.—Monrad reports the results in 291 children treated with exclusive water diet. He gives no other food as long as the child has symptoms of intoxication. Three days were sufficient in about one third of the patients, but he did not hesitate to continue the diet twelve days. Hot baths, hot compresses on the abdomen, spirits of ether, camphor, caffein and especially two to four subcutaneous infusions of 20 or 50 c.c. or two rectal infusions of 50 or 100 c.c. of salt solution, repeated daily, are essential to the results, if the water diet has to be kept up for more than three days. After it, proteins and salts have to be given; carbohydrates and fat only with caution.

Neotenic Character of Myxedema.—Moro points to some neotenic characters (attributes of younger ages) in myxedema, quoting the experimental literature. It is interesting that Hart had already compared the skin of tadpoles fed with thymus with myxedema. The thyroids of these animals are atrophic.

Somatic Constitution and Tuberculosis in Children.—Peiser found that children with a positive Pirquet reaction are just as tall, heavy and stout as their brothers and sisters with negative Pirquet. Children with a primary tuberculous pulmonary lesion are a little taller, stouter, of equal or a little smaller weight and narrower shoulders when compared with other children of their age. A narrow chest predisposes to tuberculosis, even in children.

Is a Considerable Lowering of the Mortality from Diphtheria Possible?—Schelble believes that only prophylactic treatment can lower further the mortality from diphtheria.

Catarrhal Icterus.—Schiff and Eliasberg found acetonuria in the beginning of icterus. They consider it a sign of disturbance of the liver. They always found some bile derivatives in the feces of children with icterus. Duodenal contents of twenty-six children contained little bilirubin, but gave a strong reaction with Hay's method; cholesterol was never present. Even after recovery, there was only a small excretion of cholesterol. A lipolytic ferment was always present. The bilirubin in blood gave only Bergh's indirect reaction during four months. After January, 1922, they obtained always direct reactions. Cholesterol in blood was increased to 0.3 or 0.5 per cent. They believe that icterus is due to an infection. The incubation period is three to four weeks. The affection passes, whether treated or not.

Arsphenamin By-Effects.—Slawik observed albuminuria, leukocytes, erythrocytes and casts in the urine without fever in an infant treated with mercury and arsphenamin. The symptoms disappeared when the treatment was continued. The by-effects of arsphenamin are harmless, he says. It is contraindicated only in fever.

Equilibrium of Ions and Transmineralization.—Spiro points out that it is not correct to speak of antagonism of ions without mentioning the organ on which they act. Potassium and calcium are antagonists with regard to the heart function. In their diuretic effect, they are synergists. He found that calcium favors fermentation of sugar in low concentrations more than potassium, but higher concentrations inhibit it. When working on isolated organs, one can regulate the concentrations easily; in the whole organism, however, the mutual relations and other processes make this impossible. He gives some instances of unexpected results with ingestion of calcium on the acidity of urine. Calcium elimination always parallels the potassium elimination. Injection of one substance may change the content of others in the organism (transmineralization). Jenny found that calcium is an antagonist to ammonium in its action on the heart. It is possible that the mobilization of calcium in diabetes is a compensatory process. It is not sufficient to consider in the metabolism of inorganic substances only those which react chemically together. The whole physical interrelation of ions must not be forgotten.

Cystitis from Hexamethylenamin in Scarlet Fever.—Steinitz observed seven cases of cystitis due to hexamethylenamin, which he used for prevention of scarlatinal nephritis. This was about 10 to 15 per cent. of his material. The treatment does not prevent nephritis.

Etiology and Dietotherapy of Prurigo in Children.—Weigert considers overfeeding a cause of prurigo. Sugar is especially harmful, but any food may be the cause. Hard boiled eggs are better tolerated than soft ones. Insects may be the exciting cause in some children.

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*Spurious Hermaphroditism of Endocrine Origin. Löser and Israel.—p. 75.

Leukoplakia of Kidney Pelvis.—In Corsdress' compilation of 58 cases of leukoplakia in the urinary apparatus, only 18 were in women, and the leukoplakia was restricted to a small area. The plug of epithelial cells that may obstruct the passage is not a true tumor. The bladder alone was affected in 38 cases, the kidney pelvis alone in 16, and the ureter alone in one case. When leukoplakia is in the kidney pelvis or ureter, it is generally unilateral, and hence nephrectomy is justified at need. Gonorrhea, syphilis and tuberculosis do not seem to be factors, and no evidence was discovered as to a tendency to malignant degeneration, as with leukoplakia of the mouth.

Nephropexy from the Front.—Frangenheim expatiates on the ease and advantages of the extraperitoneal, vertical, pararectal abdominal incision, for operating on the kidney. The peritoneum can be sutured to the musculature of the posterior abdominal wall and to the twelfth rib. The only drawback is the danger of lacerating the peritoneum.

Surgical Treatment of Hypertrophied Prostate.—Rubritius reports a mortality of 11.6 per cent. in 77 operative cases of enlarged prostate. He regards a specific gravity of the urine of 1.015 after Volhard's concentration test as the extreme limit allowing operative relief. When there is residual urine, an operation is indicated as soon as possible. There were 7 deaths in the 52 one-stage operations but 2 were due to extraneous causes. In one other case, a two-stage operation might have saved the patient. The water test had proved misleading in this case. He quotes Payr's remark, "My heart is with the Freyer technic, but my reason is with the Voelcker perineal method."

Cancer in Bladder Diverticulum.—Schwarz reports two cases. The exact diagnosis had been impossible during life. There was extensive metastasis in the bones in both men.

Trauma and Hypernephroma.—In the case of death from hypernephroma discussed by Gruber, the medical experts could not agree as to the causal importance of a contusion in the kidney region six months before death. The court decided that the fatal outcome had not been materially hastened by the trauma.

Pseudohermaphroditism from Endocrine Disturbance.—The close connection between the suprarenals and the gonads is confirmed anew by the two sisters whose cases are described. Both were of masculine appearance, and pneumoradiography in the bed of the kidney showed notable enlargement of the suprarenal on that side. The possibility of treatment on this basis is discussed. Both sisters stopped growing at the age of 12 or 13, and one, now 21, has to shave every day.